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09/08/99

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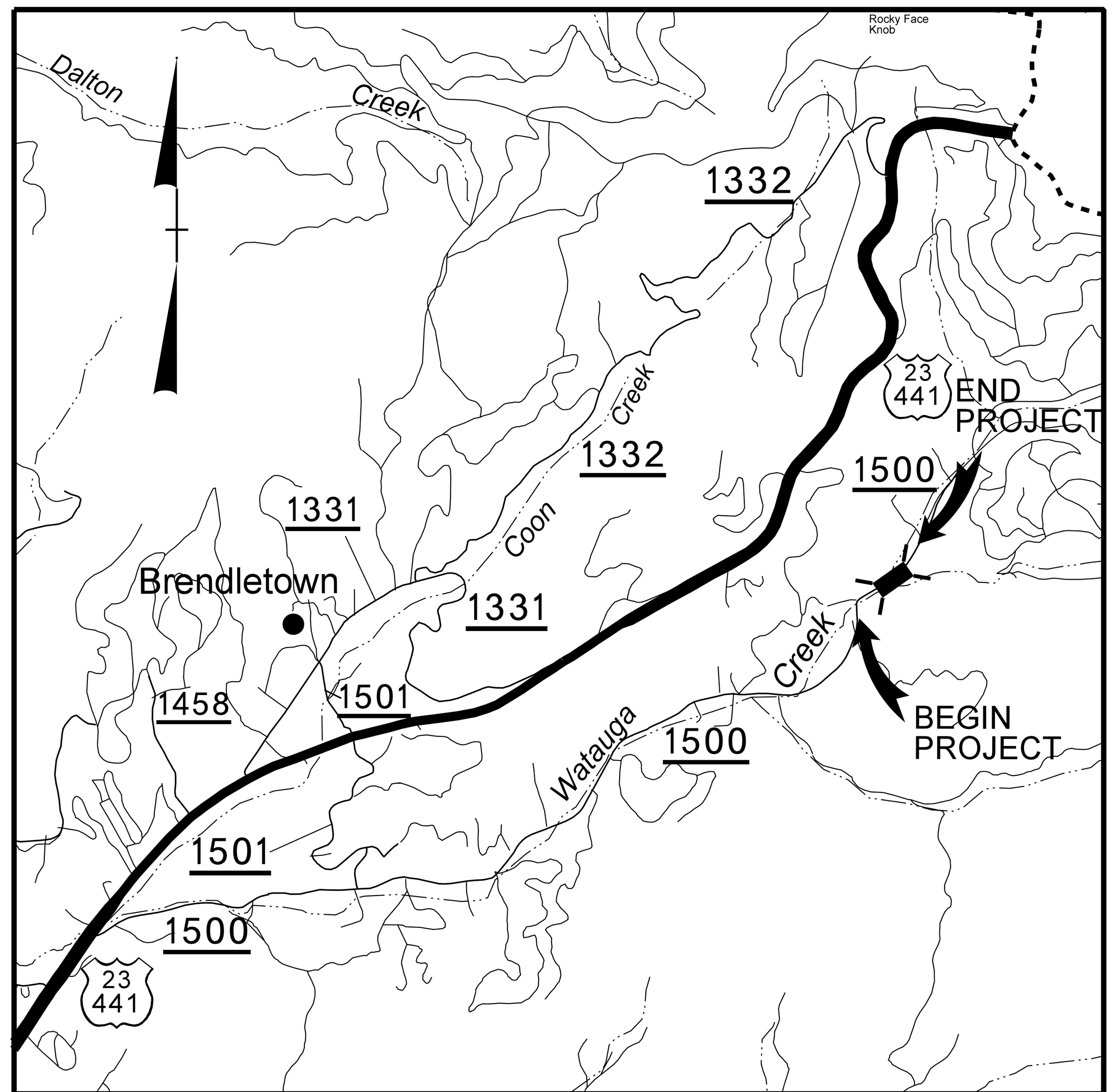
G:\CADD\Plot\CKE21004\CKE21004_rdy.tbl

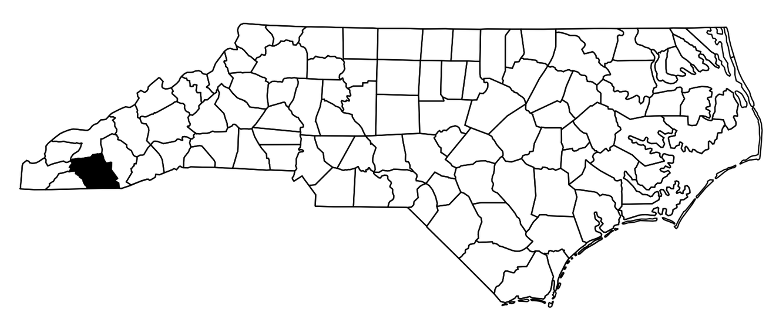
TIP PROJECT: 17BP.14.R.48

CONTRACT: DN00293

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols



VICINITY MAP **NTS**



90% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

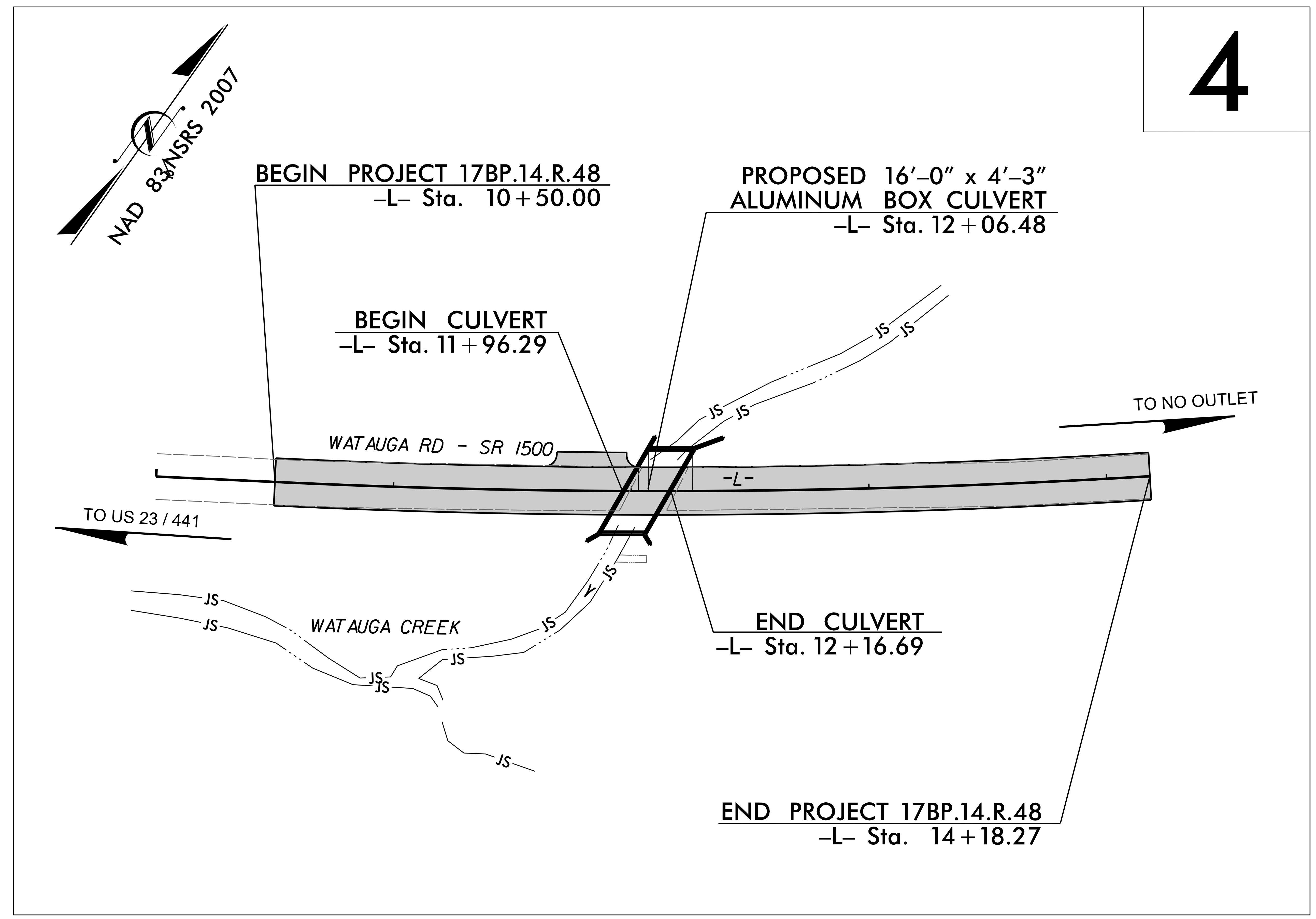
MACON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.48	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.48		PE
17BP.14.R.48		R/W
17BP.14.R.48		CONST.

LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD) OVER WATAUGA CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERT



NCDOT CONTACT:
JOSH DEYTON, PE
HIGHWAY DIVISION 14
BRIDGE MANAGER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010 = 800
ADT =
DHV = %
D = %
T = 6 % *
V = 40 MPH
* TTST = DUAL
FUNC CLASS =
LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT	=	0.066 MILES
LENGTH STRUCTURES PROJECT	=	0.004 MILES
TOTAL LENGTH PROJECT	=	0.070 MILES

Prepared In the Office of:
LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
OCT. 8, 2015

LETTING DATE:
APRIL 10, 2018

DEAN D. HATFIELD, PE
PROJECT ENGINEER

RD ODELL, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER D. HATFIELD
DocuSigned by: Dean Hatfield
820D385A07B84F8...
P.E. 3/12/2018
SIGNATURE:

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER R. D. ODELL
DocuSigned by: RD Odell
7814DD75D28A4EA...
P.E. 3/12/2018
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
I7BP.14.R.48	1A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER R. D. ODELL — DocuSigned by: RD Odell 7814DD77D26A4EA... 2/5/2018	NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER DEAN D. HATFIELD — DocuSigned by: Dean Hatfield 820D385A0... 2/5/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

INDEX OF SHEETS

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01/16/2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT UPON REQUEST.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

DUKE ENERGY, FRONTIER COMMUNICATION

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES

DETOUR REMOVAL:

THE EXISTING FRENCH DRAIN SYSTEM THAT WILL BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.

ROADWAY ENGLISH STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.41	Spring Box - Concrete or Brick
866.04	Barbed Wire Fence with Wood Posts (2 - 7 Strands)

REVISIONS

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Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY PLANS

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.48	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

12/2/2016

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	1C
Location and Surveys	

SURVEY CONTROL SHEET 55-0308
-FINAL-

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	571137.3228	711631.3949	2297.53	10+00.81	13.16 LT
2	BL-2	571250.7200	711796.7570	2305.20	12+01.95	15.57 LT
3	BL-3	571375.3560	711967.7010	2311.41	14+14.35	11.86 LT

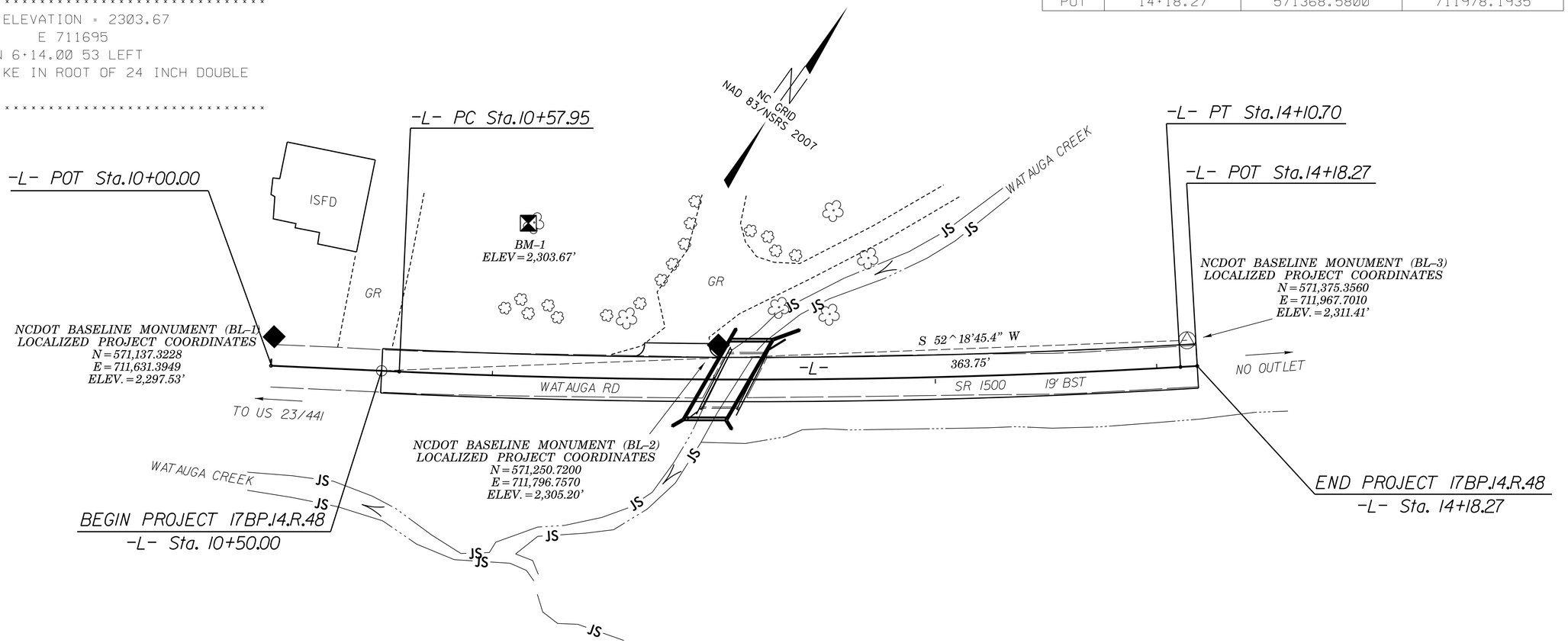
****

BM1 ELEVATION = 2303.67
N 571246 E 711695
BL STATION 6+14.00 53 LEFT
8 INCH SPIKE IN ROOT OF 24 INCH DOUBLE MAPLE

****

-L- FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	571125.8316	711637.8597
PC	10+57.95	571157.2935	711686.5209
PT	14+10.70	571363.8300	711972.2919
POT	14+18.27	571368.5800	711978.1935



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "550308-BL3" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 571375.356(ft) EASTING: 711967.701(ft) ELEVATION: 2311.41(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99976669
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "550308-BL3" TO -L- STATION 10+50.00 IS S 52°18'45.4" W 363.75 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID MODEL - G09NC
NOTE: DRAWING NOT TO SCALE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS: 550308_LS_CONTROL.TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

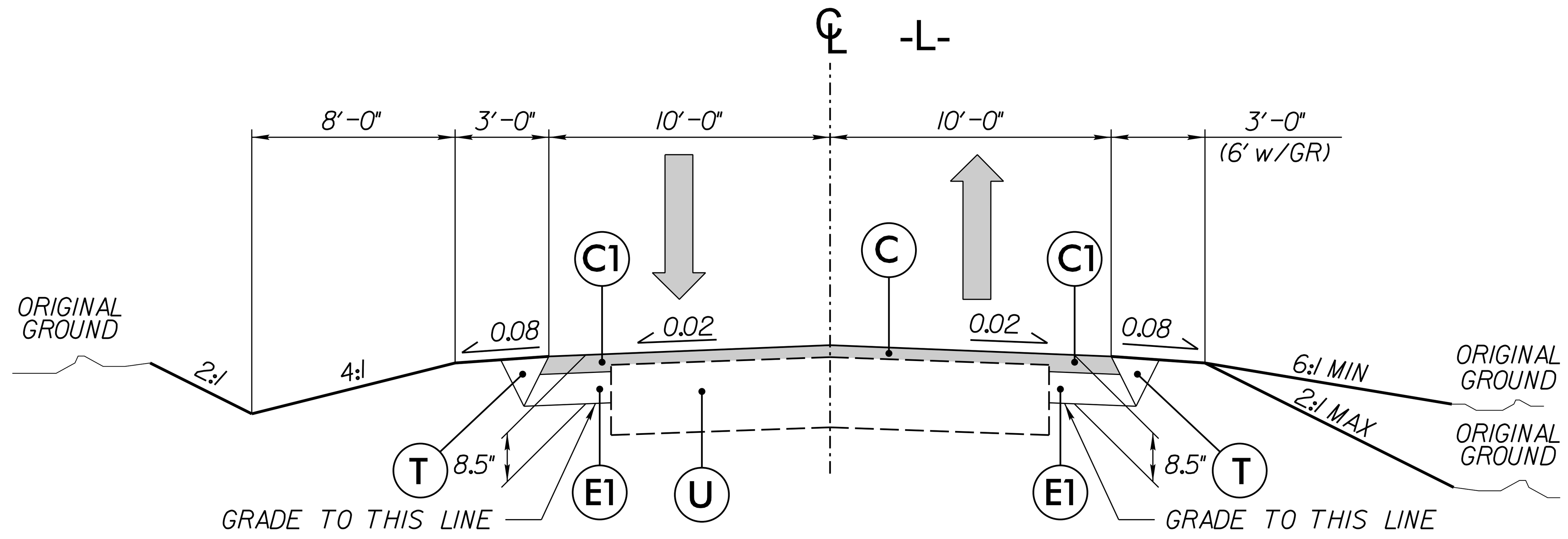
NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER R. D. ODELL 2/5/2018 — DocuSigned by: RD Odell 7814DD77D28A4FA...

NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER DEAN D. HATFIELD 2/5/2018 — DocuSigned by: Dean Hatfield 820D385A0F3B4F8...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

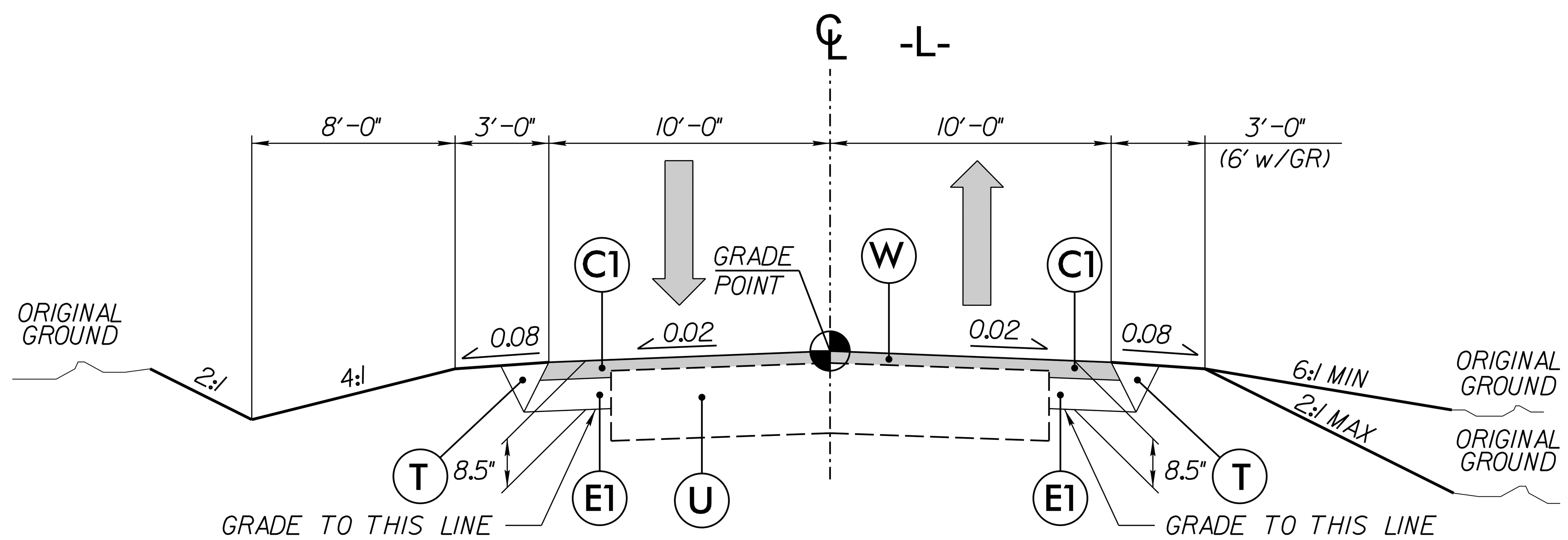
N.T.S

REVISIONS



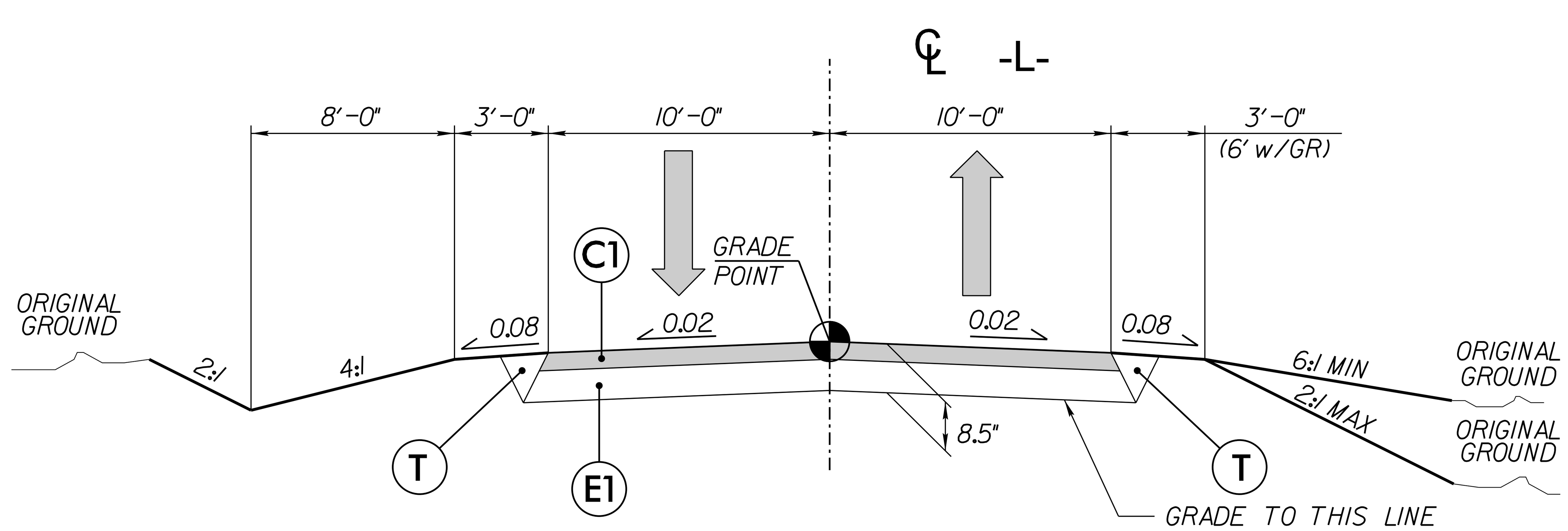
TYPICAL SECTION No. 1

–L– STA 10+50.00 TO –L– STA 10+70.00
–L– STA 13+80.00 TO –L– STA 14+18.27



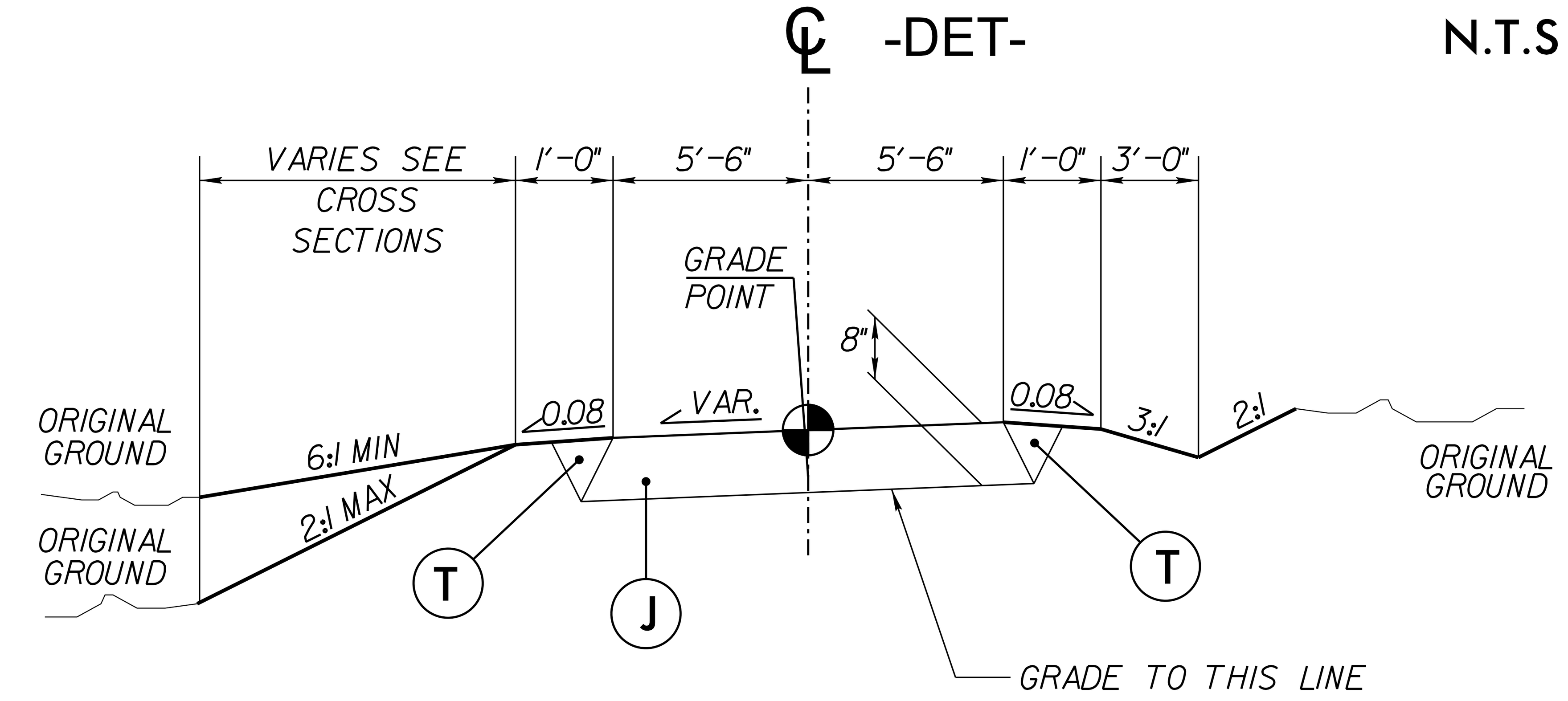
TYPICAL SECTION No. 2

–L– STA 10+70.00 TO –L– STA 11+90.00
–L– STA 12+20.00 TO –L– STA 13+80.00



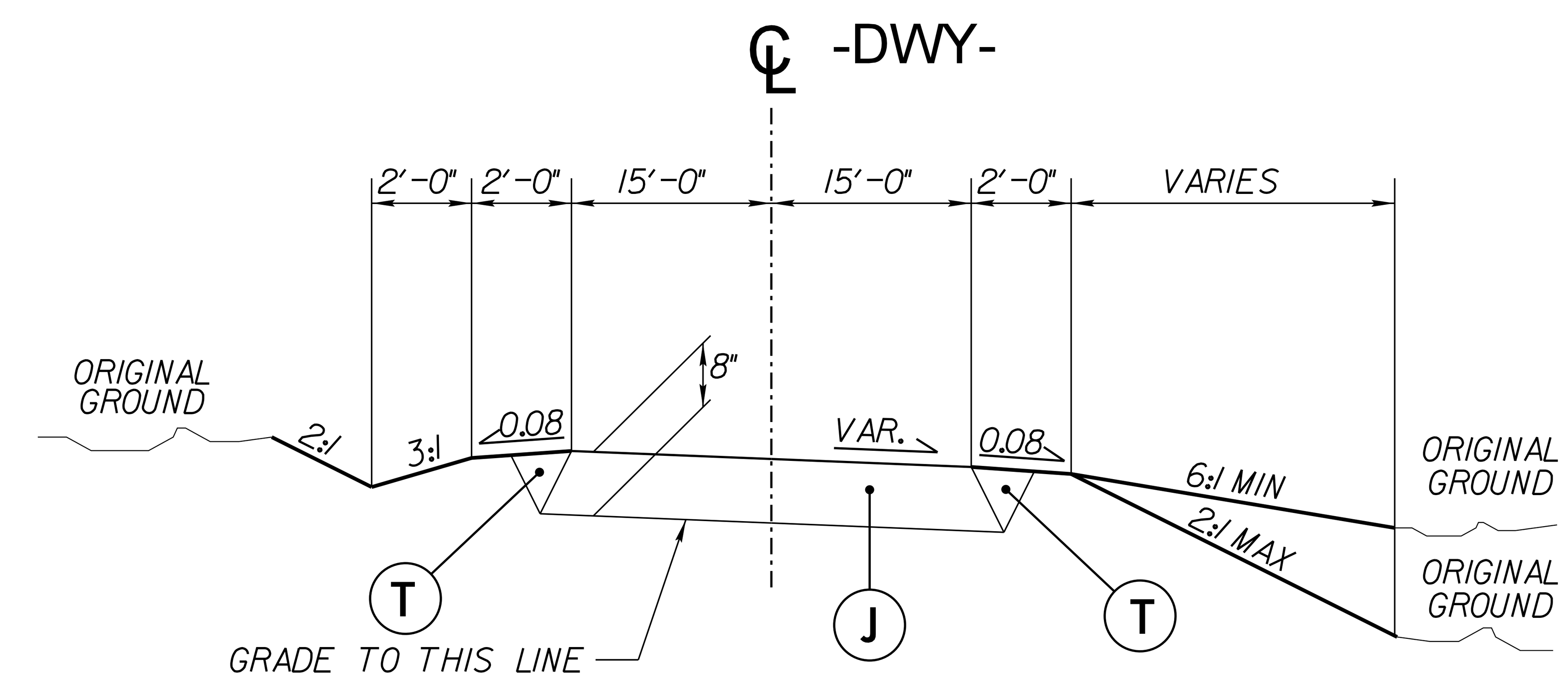
TYPICAL SECTION No. 3

–L– STA 11+90.00 TO –L– STA 12+20.00



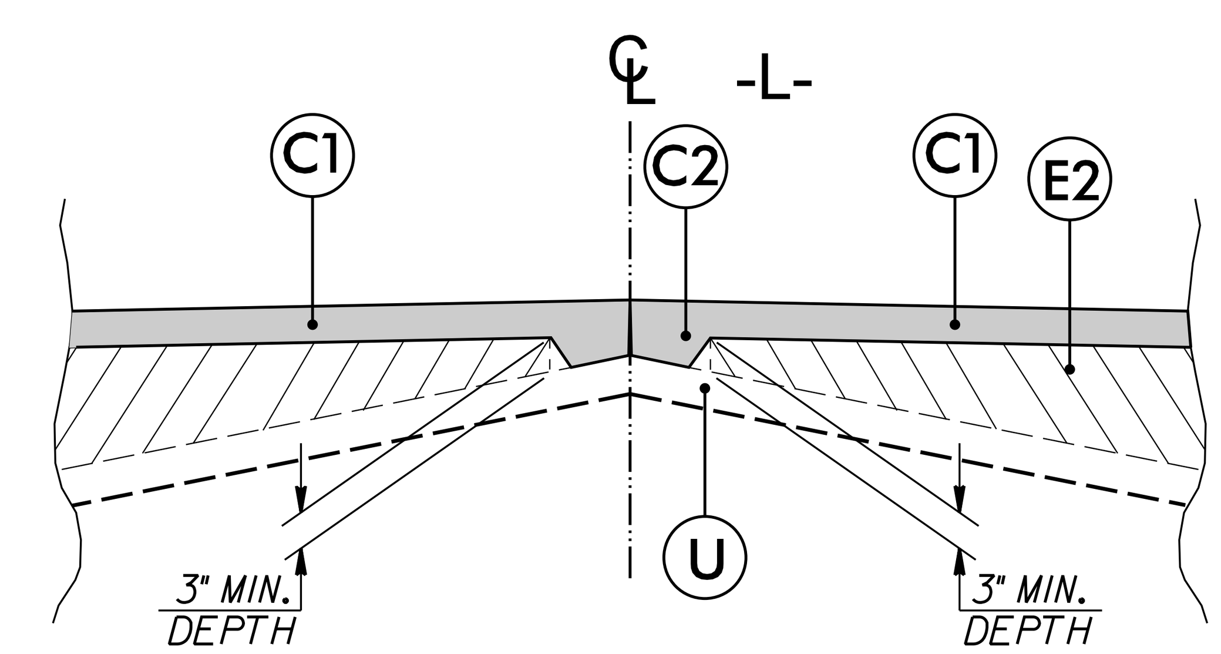
TYPICAL SECTION No. 3

–DET– STA 10+98.45 TO –DET– STA 13+34.22



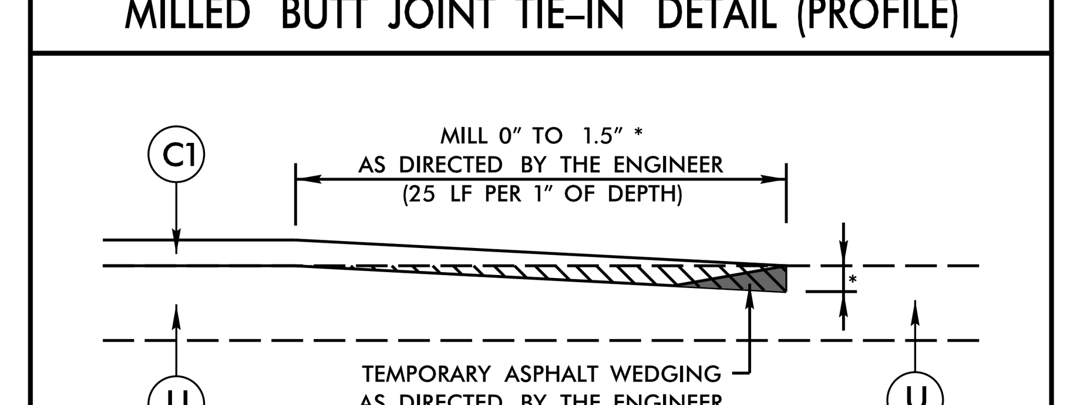
DRIVEWAY DETAIL

(SEE PLANS FOR DWY LOCATION)



DETAIL SHOWING METHOD OF WEDGING

MILLED BUTT JOINT TIE-IN DETAIL (PROFILE)



* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER

Note: Pavement edge slopes are 1:1 unless shown otherwise.

PAVEMENT SCHEDULE

ITEM	DESCRIPTION
C	Prop. Approx 1.5" Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 168 lbs. Per sq. yard.
C1	Prop. Approx 3.0" Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 168 lbs. Per sq. yard in each of two layers.
C2	Prop. Var. Depth Asphalt Concrete Surface Course, Type S9.5B, at an Average Rate of 112 lbs. Per sq. yard Per 1" Depth, to be placed in layers not less than 1.5" or greater than 2" in depth.
E1	Prop. Approx 5.5" Asphalt Concrete Base Course, Type B25.0B, at an Average Rate of 627 lbs. Per sq. yard.
E2	Prop. Var. Depth Asphalt Concrete Base Course, Type B25.0B, at an Average Rate of 114 lbs. Per sq. yard Per 1" Depth, to be placed in layers not less than 4" or greater than 5.5" in depth.
J	Prop. 8" Aggregate Base Course.
T	Earth Material
U	Existing Pavement
W	Var. Depth Asphalt Pavement

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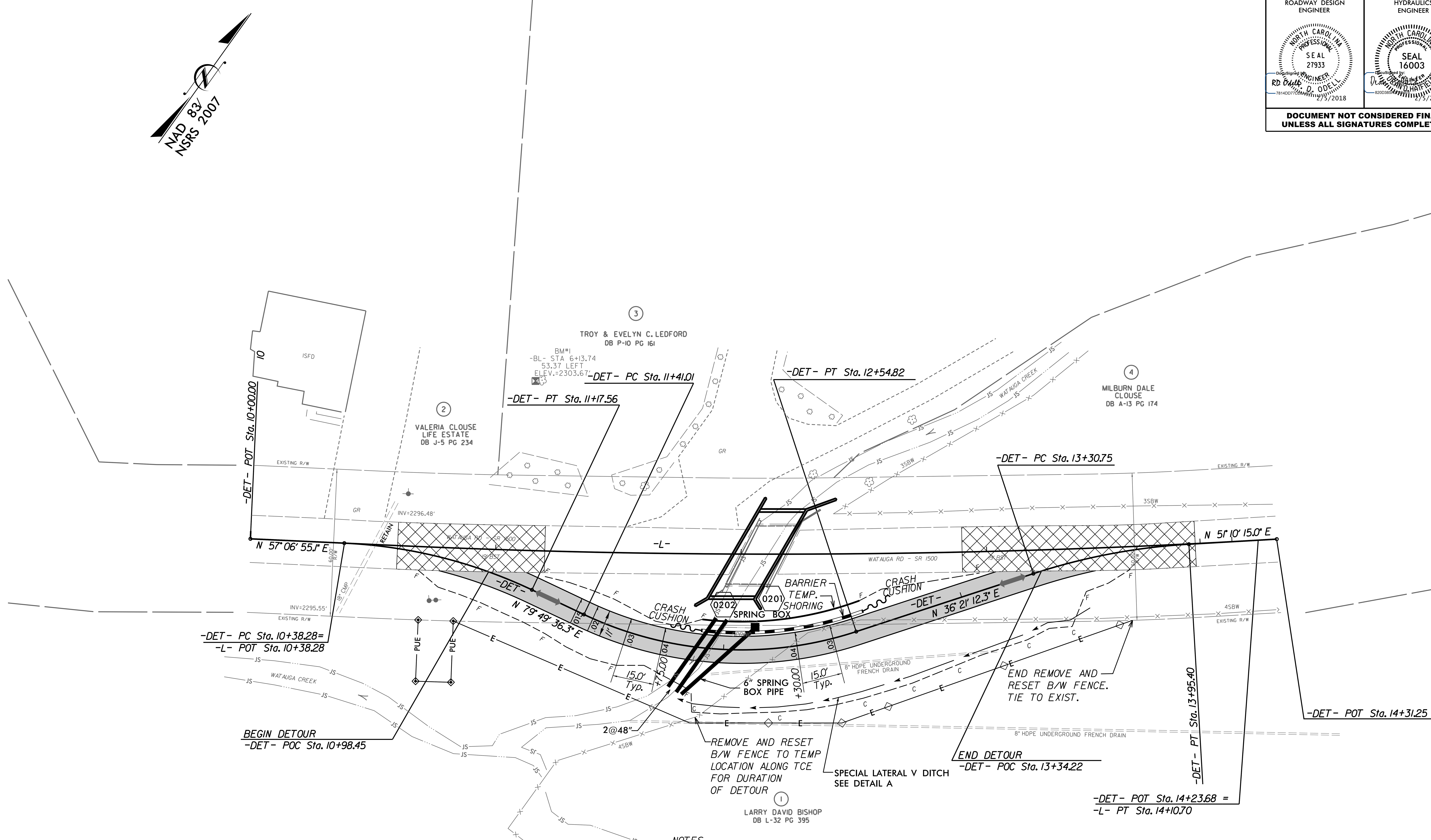
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	2B-1
R/W SHEET NO.	

0′ 20′ 40′

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER R. D. ODELL — DocuSigned by: RD Odell 7814DD77D28A4EA — 2/5/2018	NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER DEAN D. HATFIELD — DocuSigned by: 820D385A0B84E8 — 2/5/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



NOTES:

THE EXISTING FRENCH DRAIN SYSTEM THAT MAY BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.

CONTRACTOR SHALL INSTALL UNDERDRAINS PER DIRECTION OF ENGINEER.

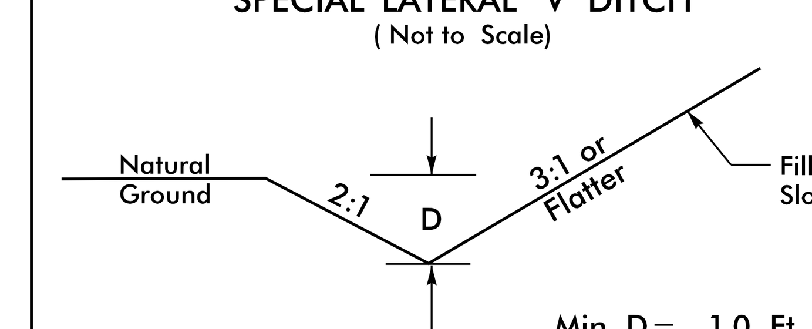
CURVE DATA FOR -DET-

PI Sta 10+78.45	PI Sta 12+00.81	PI Sta 13+63.25
Δ = 22° 42′ 41.3″ (RT)	Δ = 43° 28′ 24.0″ (LT)	Δ = 14° 49′ 02.7″ (RT)
D = 28° 38′ 52.4″	D = 38° 11′ 49.9″	D = 22° 55′ 05.9″
L = 79.28′	L = 113.81′	L = 64.65′
T = 40.17′	T = 59.80′	T = 32.51′
R = 200.00′	R = 150.00′	R = 250.00′
SE = .015	SE = .04	SE = .03
RO = 22.5′	RO = 60′	RO = 45′

DETAIL A

SPECIAL LATERAL 'V' DITCH

(Not to Scale)



FROM -DET- STA. 11+83 TO STA. 13+50 -RT-

SEE SHEET 4 FOR PLAN
SEE SHEET 2B-2 FOR PROFILE

LOUIS BERGER
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Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY PLANS

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LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

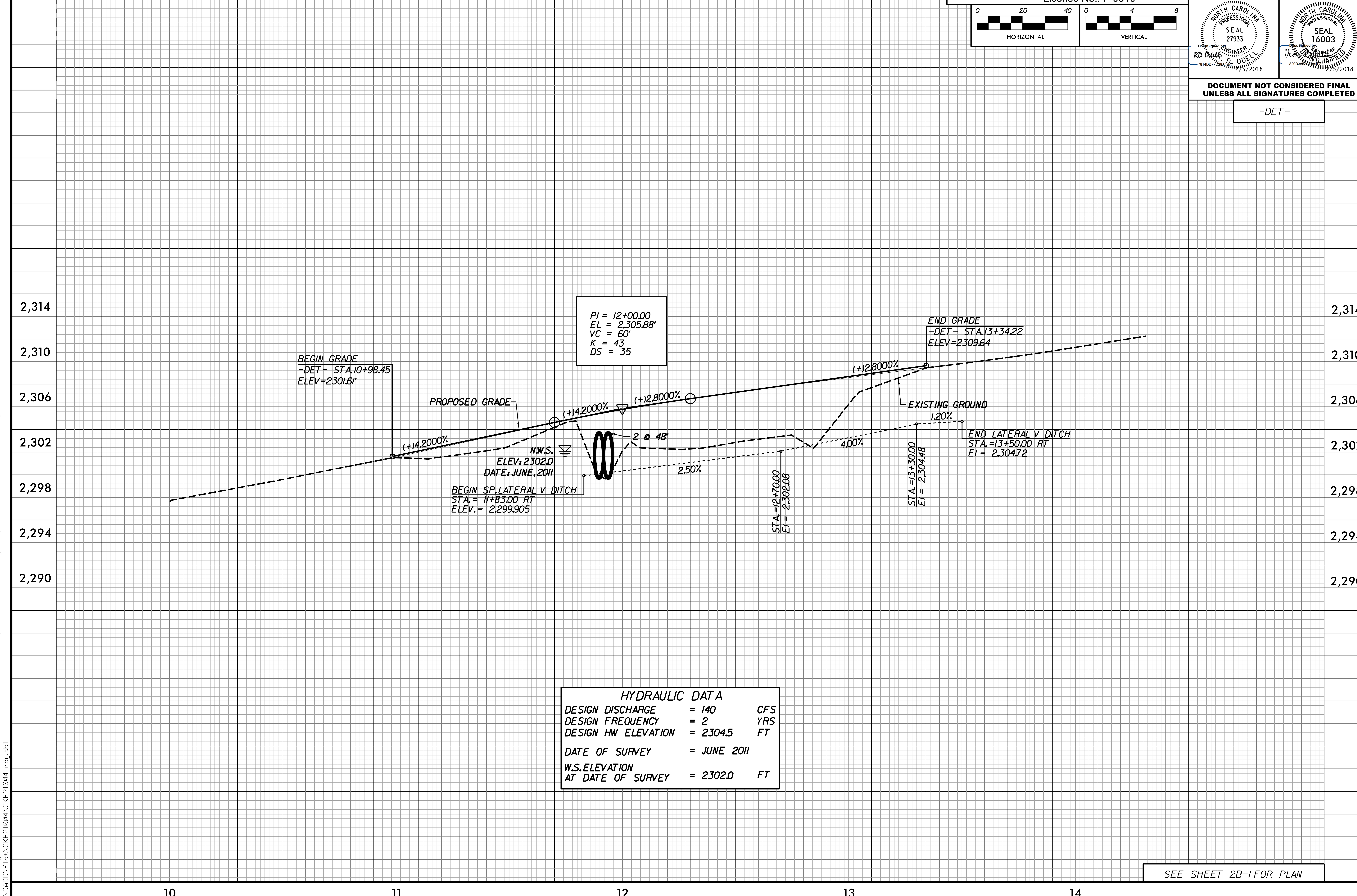
PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.48	2B-2

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER R. D. ODELL — DocuSigned by: RD Odell 7814DD77D2... 2/5/2018

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER DEAN D. HATFIELD — DocuSigned by: 820D385A... 2/5/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-DET-



HYDRAULIC DATA

DESIGN DISCHARGE	= 140	CFS
DESIGN FREQUENCY	= 2	YRS
DESIGN HW ELEVATION	= 2304.5	FT
DATE OF SURVEY	= JUNE 2011	
W.S. ELEVATION AT DATE OF SURVEY	= 2302.0	FT

SEE SHEET 2B-1 FOR PLAN

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	3B
R/W SHEET NO.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SHALL NOT BE USED FOR PROJECT CONSTRUCTION STAKEOUT.
SEE "STANDARDS SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300–5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-DET- 12+13	LT	0201																	
-DET- 11+92	CL	0202													72				
-L- 12+06	RT																		
SHEET TOTALS															72				

(SIZE; THICKNESS OR GAUGE)

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	30" (.079)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE CLASS III 12"	15"	18"	24"	30"	36"	42"	48"	R.C. PIPE CLASS IV 12"	15"	18"	24"	30"	36"	42"	48"
-DET- 12+13																								
-DET- 11+92																								
-L- 12+06																								
SHEET TOTALS																								

STATION	** " R.C. PIPE (CLASS V)	****" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	****" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
-DET- 12+13							1						
-DET- 11+92													
-L- 12+06													
SHEET TOTALS							1						

STATION	CONCRETE TRASITIONAL SECTION DROP INLET	CATCH BASIN	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.20	G.D.I. FRAME WITH TWO GRATE STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	J.B. STD. 840.31 OR 840.32	TB G.D.I STD. 840.35	F.E.S. FLARED END SECTION STD	6" SPRING BOX PIPE	SPRING BOX STD. 840.41	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN. FT.	REMARKS
-DET- 12+13															40	1					
-DET- 11+92																					TEMPORARY PIPE
-L- 12+06																					220 LF FRENCH DRAIN REPAIR (CONTINGENCY)
SHEET TOTALS															40	1					

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

SUMMARY OF EARTHWORK (IN CUBIC YARDS)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE I					
–DET– 11+00.00	13+60.00	35	535	500	–
		–	–	–	–
PHASE II					
–L– 10+50.00	14+18.27	45	56	11	–
		–	–	–	–
PHASE III – DETOUR REMOVAL					
–L– 10+80.00	13+30.00	580	35	–	545
PROJECT TOTALS:		660	626	511	545
–		–	–	–	–
LOSS DUE TO CLEARING & GRUBBING		–25	–	–	–
–		–	–	–	–
GRAND TOTALS:		635	626	511	545
–		–	–	–	–
SAY:		640	–	520	–

DDE = 0 CY
CONTINGENCY ITEMS
UNDERCUT EXCAVATION 50 CY
SELECT GRANULAR MATERIAL 50 CY

Note: Approximate quantities only. Clearing and Grubbing, Unclassified Excavation, Borrow Excavation, Fine Grading, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for "Grading."

SUMMARY OF FENCE RESET

STATION	STATION	LENGTH	COMMENTS
–DET– 11+90, 28' RT.	–DET– 13+70, 27' RT.	195'	RESET TO TCE. TIE TO EXIST FENCE EACH END.
–L– 11+80, 69' RT.	–L– 13+60, 30' RT.	195'	RESET TO APPROXIMATE ORIGINAL LOCATION AND TO EXIST ROW. TIE TO EXIST FENCE EACH END.
–L– 12+60, 30' LT.	–L– 14+10, 15' LT.	200'	RESET TO EXIST ROW. TIE TO EXIST FENCE EACH END.
TOTAL		590'	
SAY		600'	

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
–L–	10+60	11+20	CL	127
–L–	12+90	13+85	CL	200
–	–	–	–	–
–	–	–	–	–
TOTAL:				327
				–
SAY:				330

REVISIONS

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LOUIS BERGER
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License No.: F-0840

ROADWAY PLANS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER

Digitally signed by RD Odell O. ODELL
2/5/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER

Digitally signed by DONALD D. HATFIELD
2/5/2018

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0' 20' 40'

REVISIONS

NAD 83/ NSRS 2007

10

POT Sta. 10+00.00

PC Sta. 10+57.95

BEGIN CULVERT -L- STA.11+96.29

-L- STA.12+06.48
16'-0" x 4'-3"
ALUMINUM BOX CULVERT

END CULVERT -L- STA.12+16.69

PT Sta. 14+10.70

POT Sta. 14+18.27

ISFD

(2) VALERIA CLOUSE LIFE ESTATE DB J-5 PG 234

(3) TROY & EVELYN C. LEDFORD DB P-10 PG 161

BM#1
-BL- STA 6+13.74
53.37 LEFT
ELEV.=2303.67'

(4) MILBURN DALE CLOUSE DB A-13 PG 174

(1) LARRY DAVID BISHOP DB L-32 PG 395

MAINTAIN EXISTING R/W

DO NOT DISTURB DRIVEWAY

REMOVE AND RESET B/W FENCE

MAINTAIN EXISTING R/W

4 TNS
CLASS II RIP RAP
4 S.Y. FILTER FABRIC

5 TNS
CLASS II RIP RAP
5 S.Y. FITER FABRIC

WATAUGA CREEK

WATAUGA RD - SR 1500

19' BST

60.00' R/W

INV=2296.48'

INV=2295.55'

EXISTING R/W

GR

SPRING

R=5.0'

30.0' DWY

RETAIN

.02

20'

.03

.035

N 57° 06' 55.1" E

N 51° 10' 15.0" E

-L-

PUE

+83.84 -L-
29.76' RT,
54.76' RT

+69.66 -L-
29.90' RT,
54.90' RT

+79.73 -L-
68.99' RT

+40.48 -L-
68.93' RT

+58.21 -L-
30.06' RT

+45.00

15.0' Typ.

45BW

35BW

JS

F

E

X

8" HDPE UNDERGROUND FRENCH DRAIN

UPON REMOVAL OF DETOUR, RECONSTRUCT EXISTING ROADSIDE DITCH FROM -L- STA 12+30 TO STA 13+40 RT

END REMOVE AND RESET TEMP B/W FENCE. TIE TO EXIST FENCE. (ALSO SEE SHEET 2B-1

REMOVE AND RESET TEMP B/W FENCE TO APPROXIMATE ORIGINAL LOCATION AND TO EXIST.R/W. TIE TO EXIST FENCE. (ALSO SEE SHEET 2B-1

BEGIN PROJECT 17BPJ4.R.48
-L- Sta. 10+50.00

END PROJECT 17BPJ4.R.48
-L- Sta. 14+18.27

CURVE DATA FOR -L-

PI Sta 12+34.48
△ = 5° 56' 40.1" (LT)
D = 1° 41' 06.6"
L = 352.75'
T = 176.53'
R = 3,400.00'
Se = .02
RO = NA

NOTES:

THE EXISTING FRENCH DRAIN SYSTEM THAT MAY BE DAMAGED DURING CONSTRUCTION ACTIVITIES WILL NEED TO BE REPAIRED ONCE THE DETOUR IS REMOVED.

CONTRACTOR SHALL INSTALL UNDERDRAINS PER DIRECTION OF ENGINEER.

SEE SHEET 5 FOR PROFILE
SEE SHEETS C-1 THRU C-4 FOR CULVERT PLANS

LOUIS BERGER
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ROADWAY PLANS

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LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4.R.48	5

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27933 ENGINEER

DocuSigned by: RD Odell 7814D077...
RD ODELL, D. ODELL
2/5/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16003 ENGINEER

DocuSigned by: Richard Hatfield 820C03...
RICHARD HATFIELD
2/5/2018

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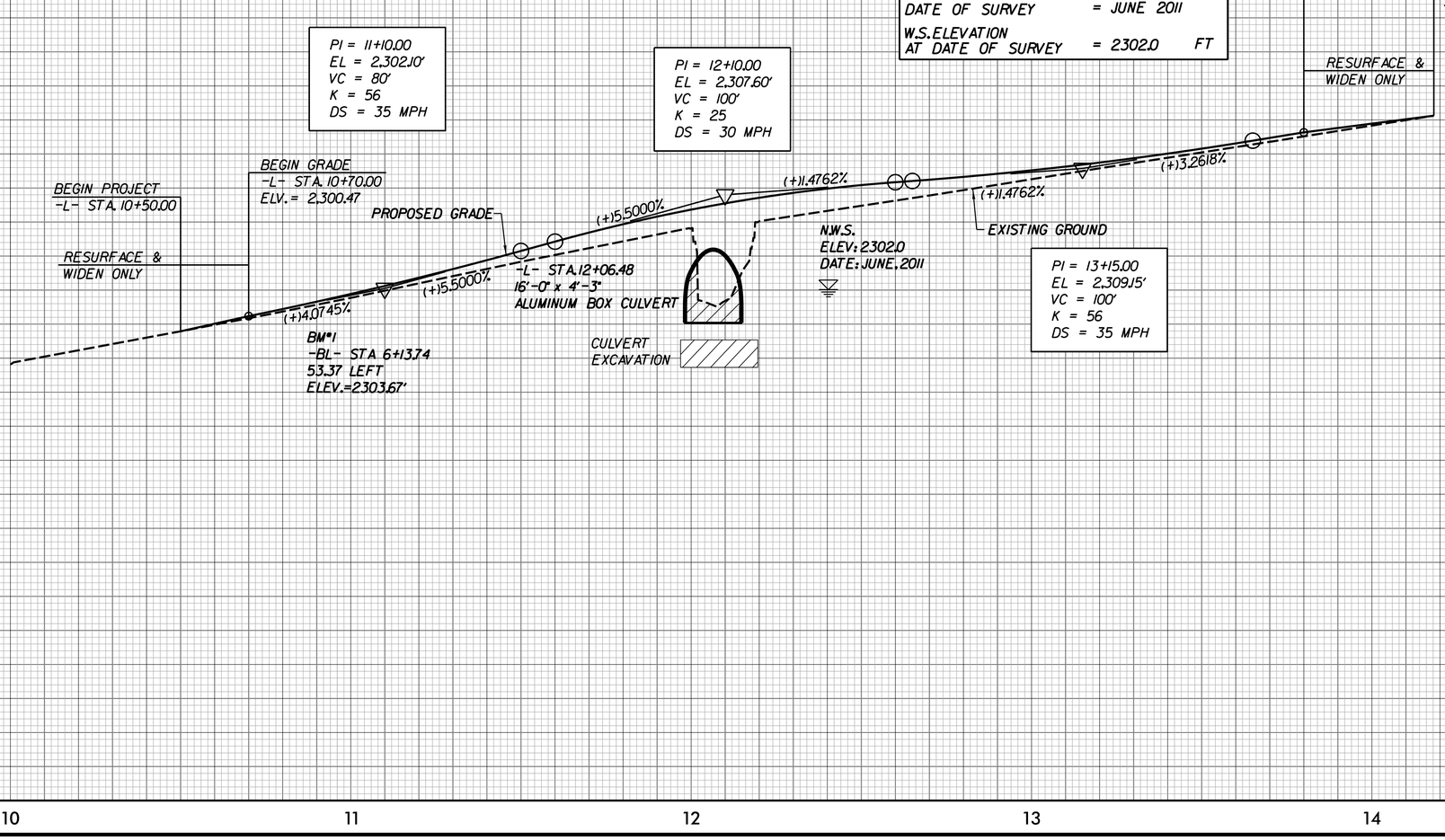
0 20 40 HORIZONTAL

0 4 8 VERTICAL

-L-

HYDRAULIC DATA

DESIGN DISCHARGE	= 250	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2305.4	FT
BASE DISCHARGE	= 700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2307.15	FT
OVERTOPPING DISCHARGE	= 250	CFS
OVERTOPPING FREQUENCY	= 5	YRS
OVERTOPPING ELEVATION	= 2305.34	FT
DATE OF SURVEY	= JUNE 2011	
W.S. ELEVATION AT DATE OF SURVEY	= 2302.0	FT

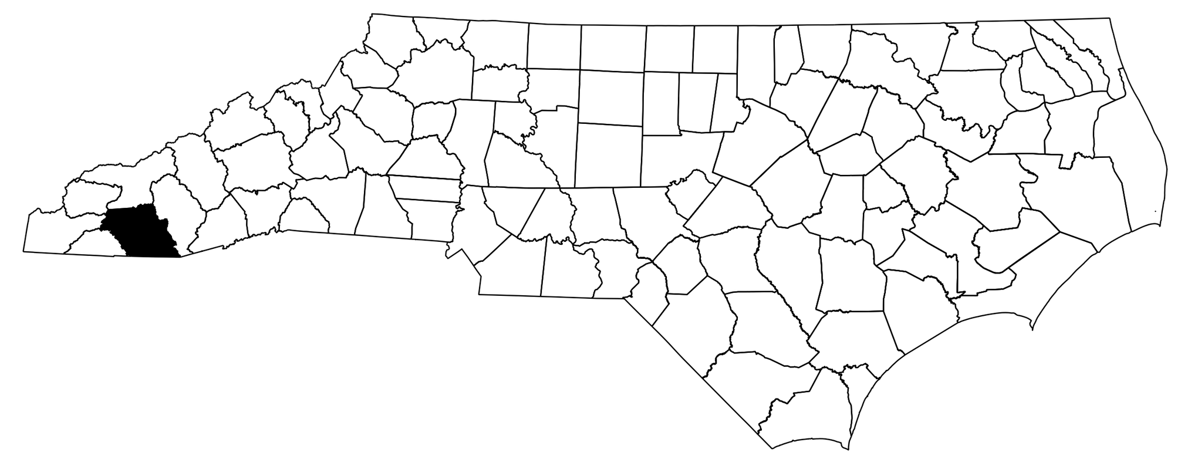


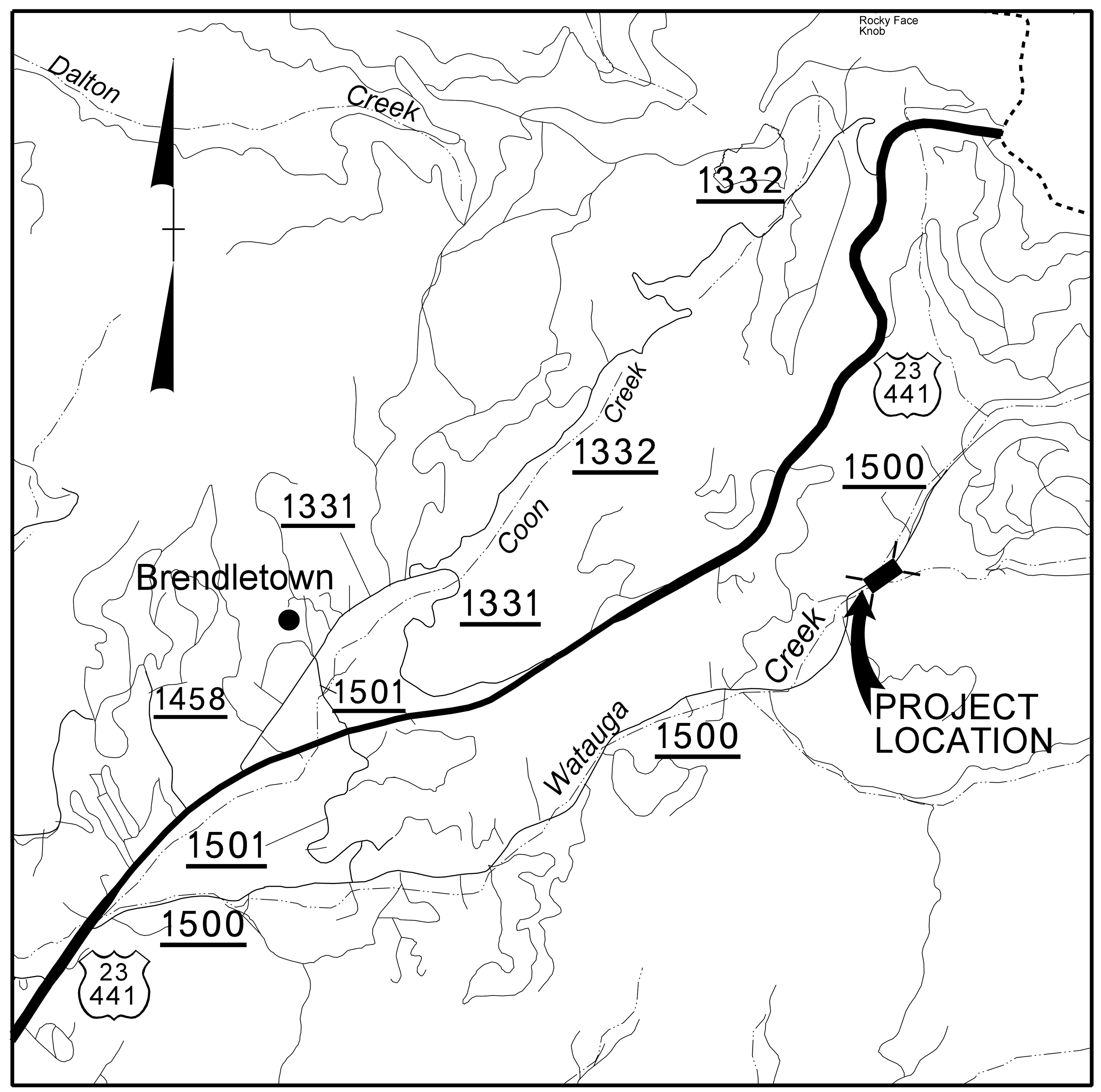
SEE SHEET 4 FOR PLAN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MACON COUNTY





VICINITY MAP NTS

LOCATION: BRIDGE NO. 308 ON SR 1500 OVER WATAUGA CREEK

INDEX OF SHEETS

SHEET NO.
TMP-1

PROJECT: 17BP.14.R.48

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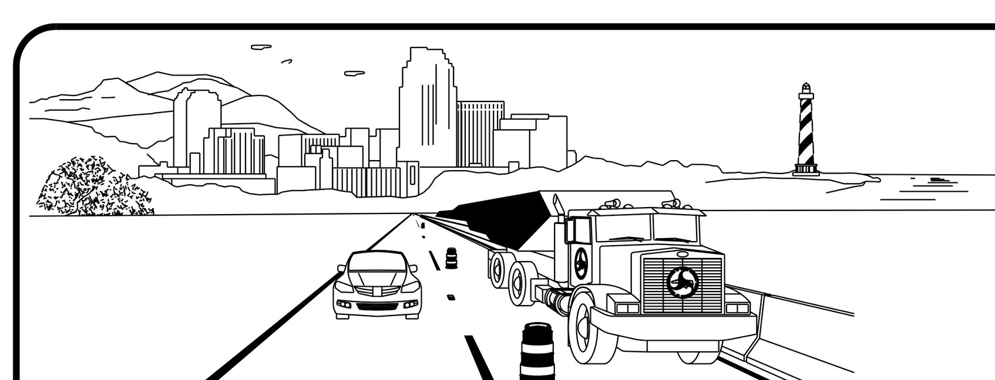

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

JOSEPH E. HUMMER, PE ***STATE TRAFFIC MANAGEMENT ENGINEER***

____________ ***TRAFFIC CONTROL PROJECT ENGINEER***

____________ ***TRAFFIC CONTROL PROJECT DESIGN ENGINEER***

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

Prepared In the Office of:
THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, North Carolina 27605
License No.: F-0840

DEAN D. HATFIELD, PE
PROJECT ENGINEER

GEORGE L. GETTIER, PE
PROJECT DESIGN ENGINEER

APPROVED:____________
DATE:____________

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8973 GEORGE L. GETTIER
DocuSigned by: G L Gettier
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2/5/2018

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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW
EXIST. PVMT.
NORTH ARROW
PROPOSED PVMT.
TEMP. SHORING (LOCATION PURPOSES ONLY)
REMOVAL
WORK AREA

SIGNALS

TEMP TEMPORARY

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)
DRUM
BARRIER
CRASH CUSHION

TEMPORARY SIGNING

STATIONARY SIGN

TEMPORARY PAVEMENT MARKING

P2	24" WHITE STOPBAR
PA	4" WHITE EDGELINE

REVISIONS

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APPROVED:______ DATE:______

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER GEORGE L. GETTIER
DocuSigned by: G L Gettier
E1D5CB6355E34F4...
2/5/2018

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS,
AND LEGEND

THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322

PROJECT REFERENCE NO.	SHEET NO.
I7BPJ4.R.48	TMP-IB

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GENERAL NOTES /LOCAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

E) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

G) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200 IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

H) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

I) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

TRAFFIC CONTROL DEVICES

L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

M) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L-	PAINT	NONE

O) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

P) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

Q) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

R) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 200 AND 400 RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

TEMPORARY SHORING

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 11+90 +/-, 11.5 FEET LEFT TO STATION 12+60 +/-, 11.5 FEET LEFT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

MANAGEMENT STRATEGIES

- DURING CONSTRUCTION, SR 1500 (WATAUGA ROAD) TRAFFIC WILL BE PLACED IN A ONE LANE, TWO WAY PATTERN PER NCDOT.
- SIGNAGE AT THE BEGINNING AND END OF CONSTRUCTION WILL MANAGE SR 1500 TRAFFIC.
- THE CONSTRUCTION OF TIE-INS, TRAFFIC SHIFTS, PLACEMENT OF FINAL SURFACE COURSE AND PAVEMENT MARKINGS WILL BE PERFORMED USING FLAGGERS FOR TWO LANE, ONE WAY TRAFFIC OPERATION.
- MAINTAIN ACCESS TO DRIVEWAY AT 11+80 LT AT ALL TIMES DURING CONSTRUCTION.

PHASING

PHASE I

STEP 1: PRIOR TO CONSTRUCTION OPERATIONS, INSTALL WORK ZONE ADVANCE WARNING SIGNS PER SHEET TMP-3 AND ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3.

STEP 2: WHILE TRAFFIC IS MAINTAINED ON THE EXISTING ROADWAY, COMPLETE THE FOLLOWING (TMP-3):
- CONSTRUCT TEMPORARY PIPE AND TEMPORARY DRAINAGE.
- CONSTRUCT TEMPORARY SHORING.
- CONSTRUCT TEMPORARY DETOUR, USING R.S.D. 1101.02, 1 OF 14, AS NEEDED.
- PLACE PORTABLE CONCRETE BARRIER, TEMPORARY CRASH CUSHIONS AND BARRICADES.

PHASE II

STEP 1: TO BE COMPLETED IN ONE WORK PERIOD USING RDY STD. 1101.02 SHEET 1 OF 14, PERFORM THE FOLLOWING (TMP-4):
-CONSTRUCT/INSTALL TEMPORARY TRAFFIC SIGNAL.
-PLACE TEMPORARY MARKINGS ON EXISTING SR 1500 FOR A TEMPORARY ONE LANE, TWO WAY TRAFFIC PATTERN.
-CONSTRUCT DETOUR TIE-INS TO EXISTING ROADWAY.
-INSTALL ADDITIONAL SIGNS FOR TEMPORARY TRAFFIC SIGNAL, ACTIVATE THE SIGNAL, AND SHIFT TRAFFIC TO TEMPORARY ONE LANE, TWO WAY PATTERN.

STEP 2: WITH TRAFFIC ON TEMPORARY DETOUR, COMPLETE THE FOLLOWING (TMP-4):
-REMOVE EXISTING CULVERT IN ACCORDANCE WITH ROADWAY AND CULVERT PLANS.
-CONSTRUCT PROPOSED CULVERT (SEE CULVERT PLANS).
-CONSTRUCT -L- FROM STA. 10+50± TO -L- STA. 14+18.27± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE ADDITIONAL DRUMS TO DIRECT ONE LANE TRAFFIC WHEN CONSTRUCTING WIDENING FROM -L- STA. 10+50 TO STA. 10+75± AND FROM STA. 13+50+ TO STA. 14+18±. USE TEMPORARY SIGNALS TO STOP TRAFFIC FOR PAVING IN DETOUR TIE AREA.

PHASE III

STEP 1: MAINTAIN THE TEMPORARY TRAFFIC SIGNAL TO PERFORM THE FOLLOWING (TMP-5):
- PLACE TRAFFIC INTO A TEMPORARY ONE- LANE, TWO WAY TRAFFIC PATTERN ACROSS THE PROPOSED STRUCTURE.
- COMPLETE THE REMOVAL OF THE DETOUR AND ASSOCIATED TRAFFIC CONTROL DEVICES.
- PERFORM ALL NECESSARY SHOULDER AND DRAINAGE WORK AWAY FROM TRAFFIC.

STEP 2: TO BE COMPLETED IN ONE WORK PERIOD, CONSTRUCT TIE-INS AND PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS. AT THE END OF THE WORK PERIOD OPEN CULVERT TO FINAL TRAFFIC PATTERN.

STEP 3: COMPLETE THE REMOVAL OF ANY REMAINING TRAFFIC CONTROL DEVICES.

APPROVED:__________ DATE:______

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8973 GEORGE L. GETTIER
DocuSigned by: G L Gettier
E1D5CB6355E34F4...
2/5/2018

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES AND PHASING)

REVISIONS

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THE LOUIS BERGER GROUP, Inc.
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322

PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R.48	TMP-2

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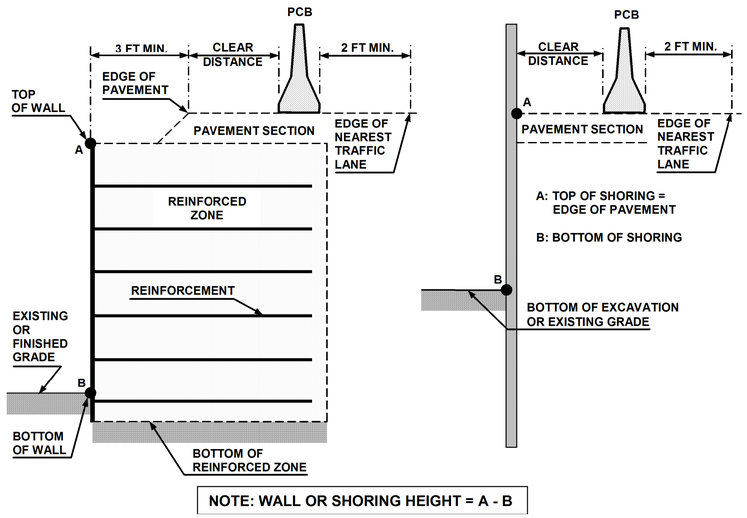

NOTE: WALL OR SHORING HEIGHT = A - B

FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE.

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

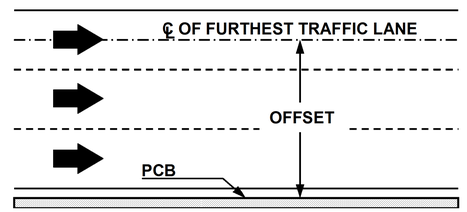

FIGURE B

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER
AT
TEMPORARY SHORING LOCATIONS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
I7BPJ4.R.48	TMP-3

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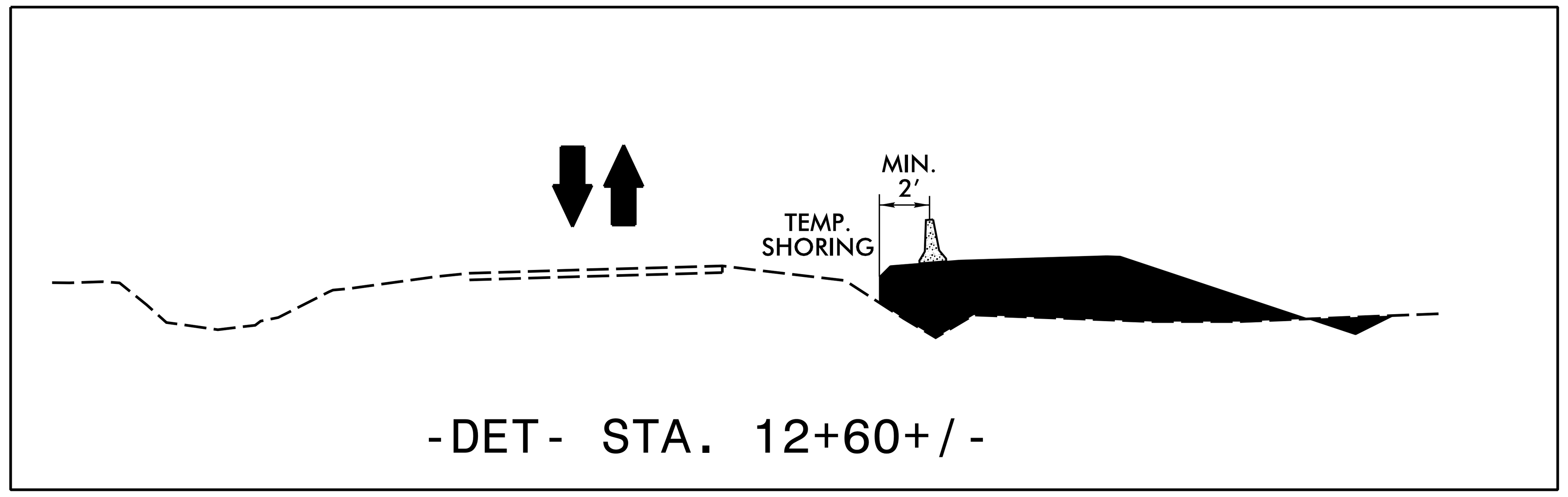
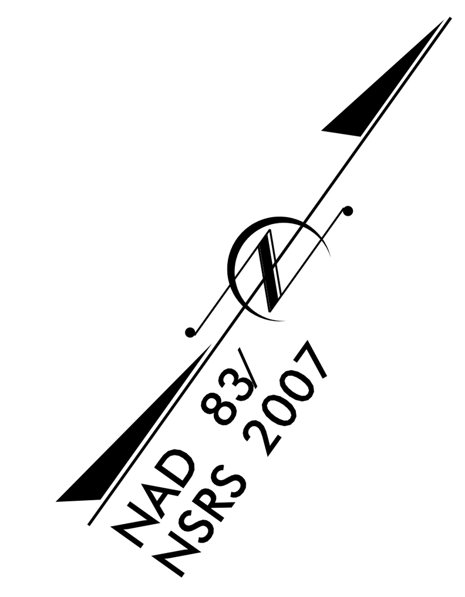
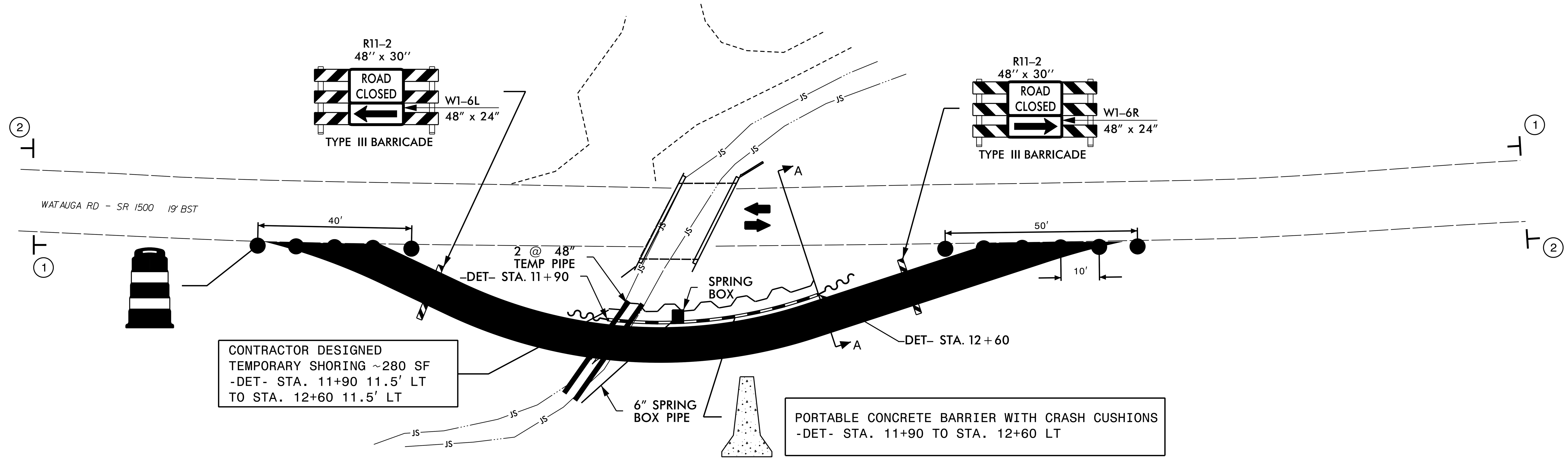
REVISIONS

A-A



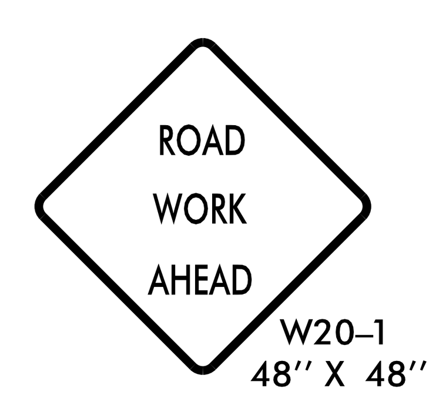




CONTRACTOR DESIGNED
TEMPORARY SHORING ~280 SF
-DET- STA. 11+90 11.5′ LT
TO STA. 12+60 11.5′ LT

PORTABLE CONCRETE BARRIER WITH CRASH CUSHIONS
-DET- STA. 11+90 TO STA. 12+60 LT

NOTES:
1. FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
2. ALL SIGN LOCATIONS ARE APPROXIMATE.
3. SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.



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TEMPORARY TRAFFIC CONTROL
PHASE I

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PROJECT REFERENCE NO.: 17BP.14.R.48
SHEET NO.: TMP-4

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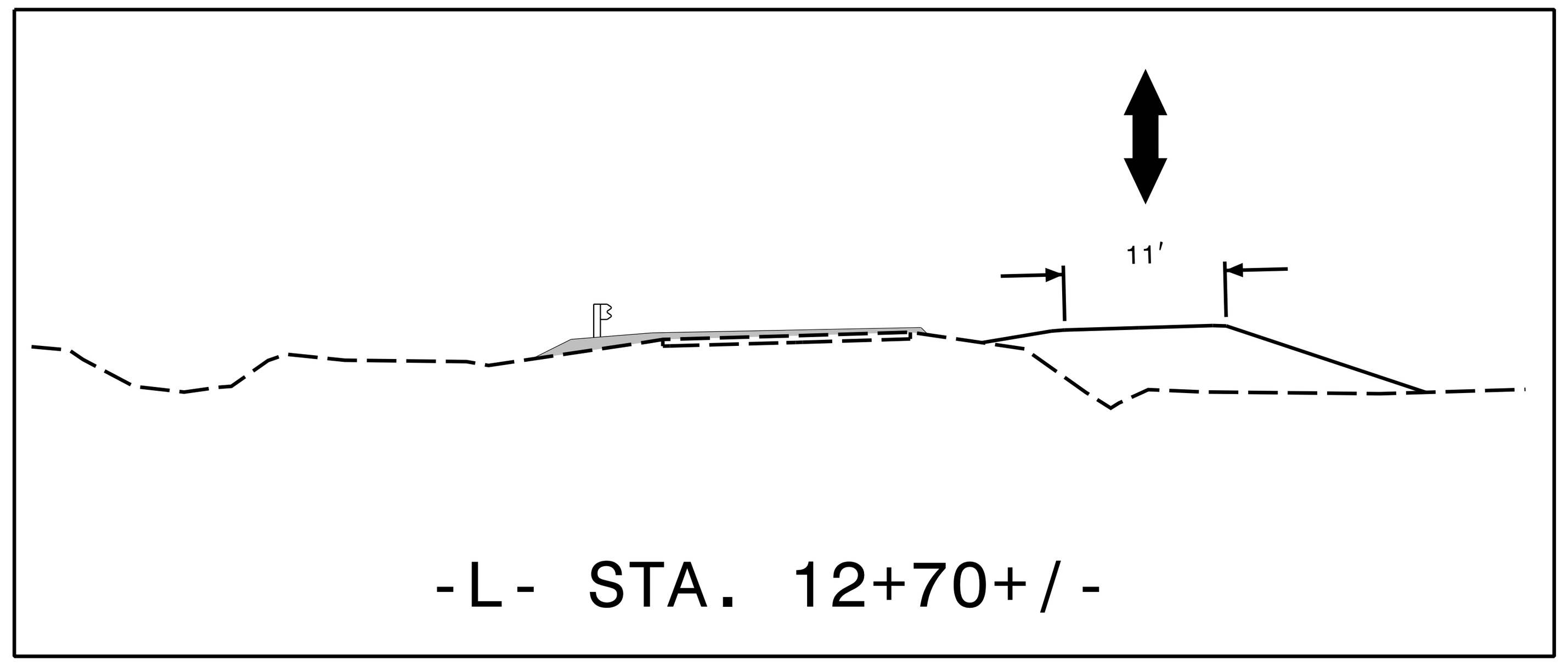
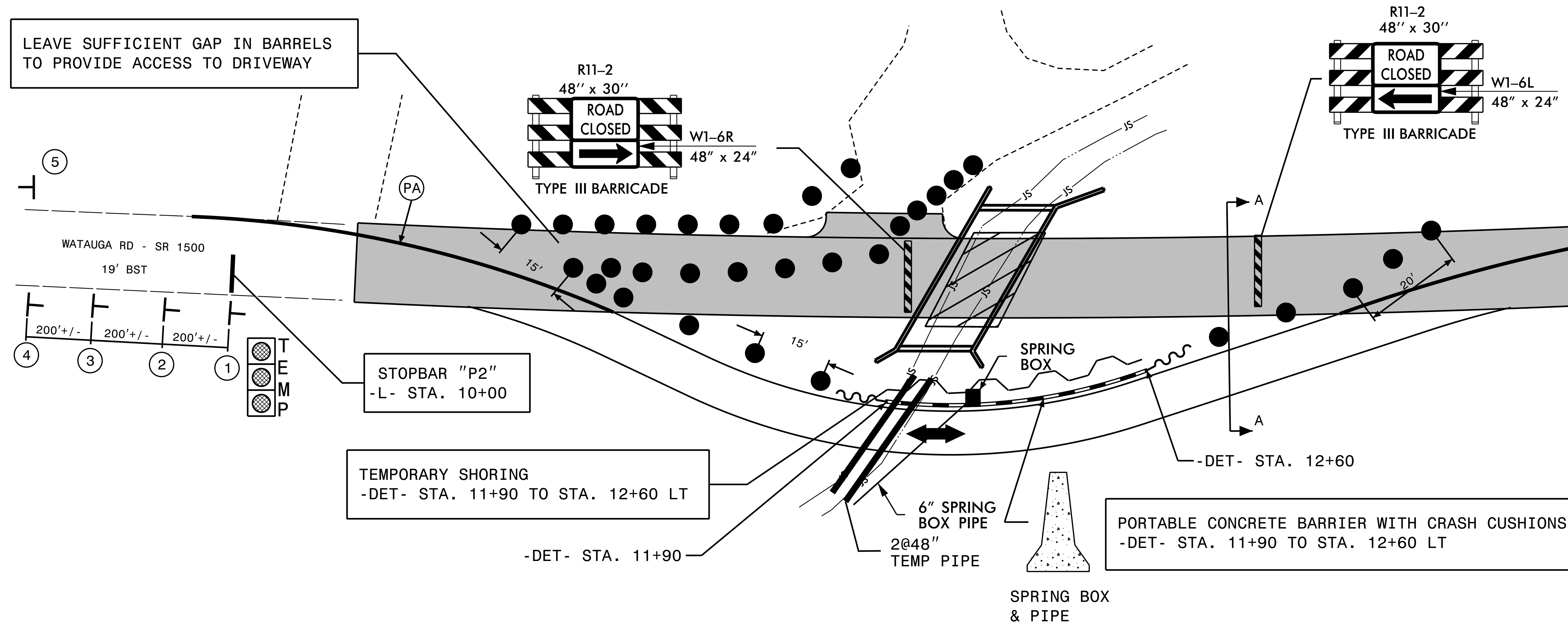
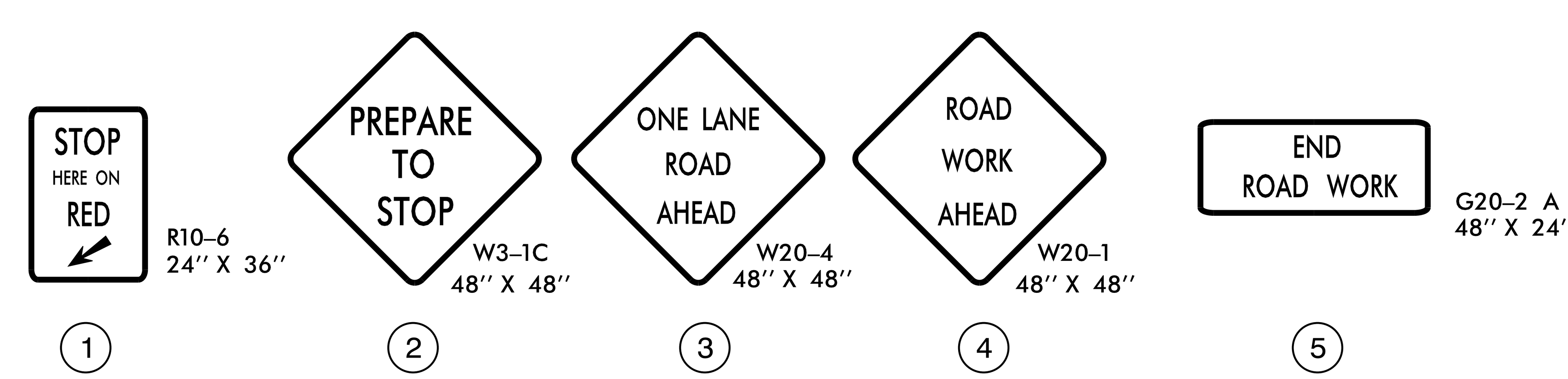
REVISIONS

A-A





NOTES:
1. FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
2. ALL SIGN LOCATIONS ARE APPROXIMATE.
3. SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.
4. MAINTAIN ACCESS TO DRIVEWAY AT -L- STA. 11+80 LT AT ALL TIMES.



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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER GEORGE L. GETTIER

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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASE II

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PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R.48	TMP-5

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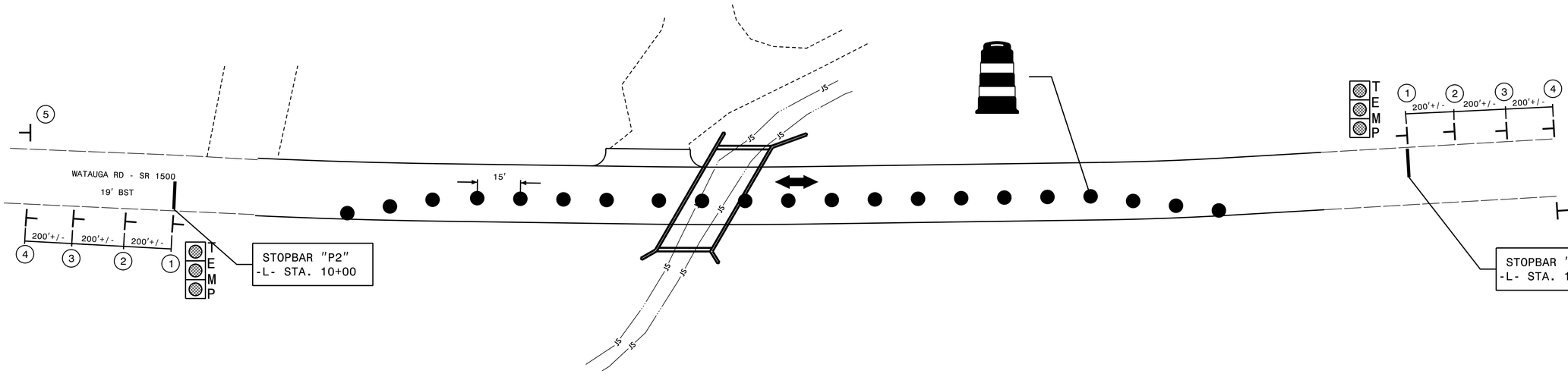
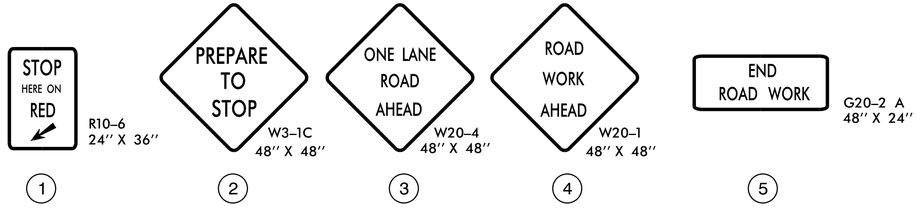
REVISIONS



NOTES:
1. FOR CONSTRUCTION PHASING NOTES, SEE SHEET TMP-1B.
2. ALL SIGN LOCATIONS ARE APPROXIMATE.
3. SEE ROADWAY STANDARD DRAWING 1101.01 SHEET 3 OF 3 FOR SIGN LOCATIONS AND APPLICABLE NOTES.
4. MAINTAIN ACCESS TO DRIVEWAY AT -L- STA. 11+80 LT AT ALL TIMES.



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SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8973 GEORGE GETTIS
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11/5/2018

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL
PHASE III

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PROJECT REFERENCE NO.	SHEET NO.
17BPJ4R.48	PMP-1

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NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER CLARENCE L. GETTER

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5/2018

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS
MACON COUNTY

LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD) OVER WATAUGA CREEK

REVISIONS

INDEX

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS

PAVEMENT MARKING SCHEDULE

ASPHALT PAVEMENT DESIGN
(AS SHOWN)

PAVEMENT MARKING LINES

PA - PAINT - WHITE EDGELINE (4")
PI - PAINT - YELLOW DOUBLE CENTER (4")

GENERAL NOTES

THE FOLLOWING NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L-	PAINT	NONE

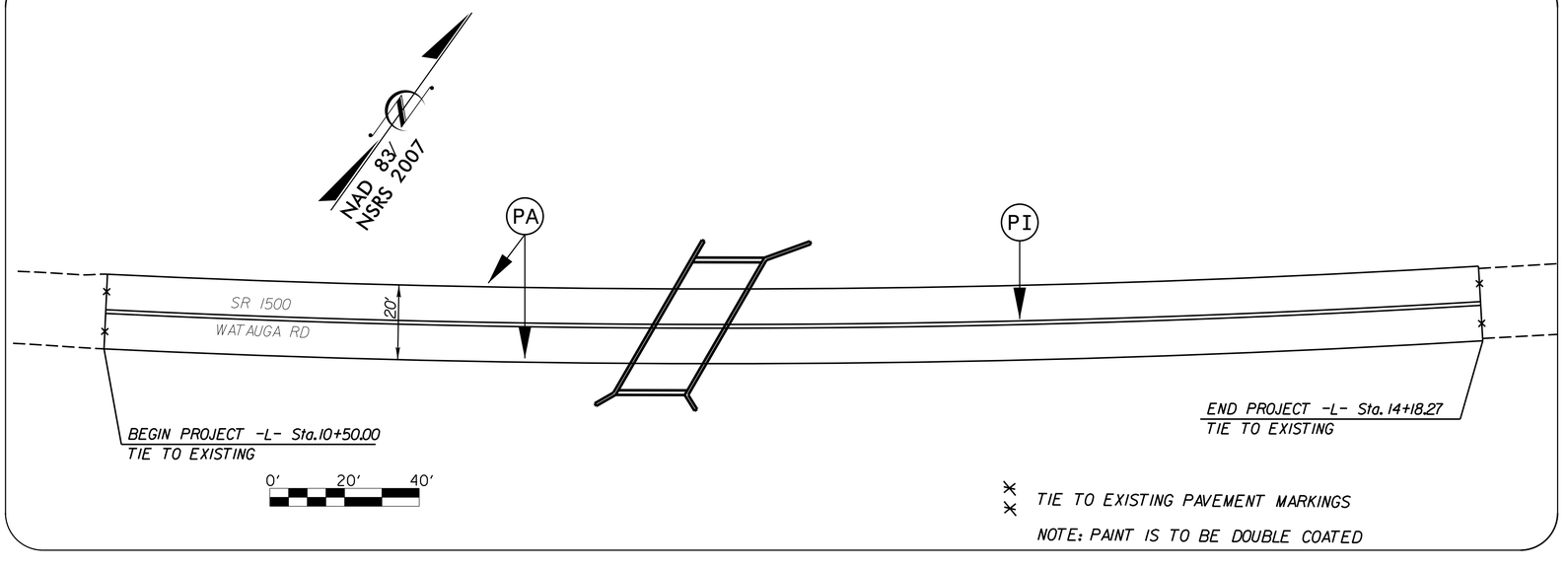
B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE, PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

C) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

D) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

E) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

PAVEMENT MARKING DETAIL



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Raleigh, NC 27605-3322
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	17BP.14.R.48	EC-1
	R/W SHEET NO.	

EROSION CONTROL

PHASE I

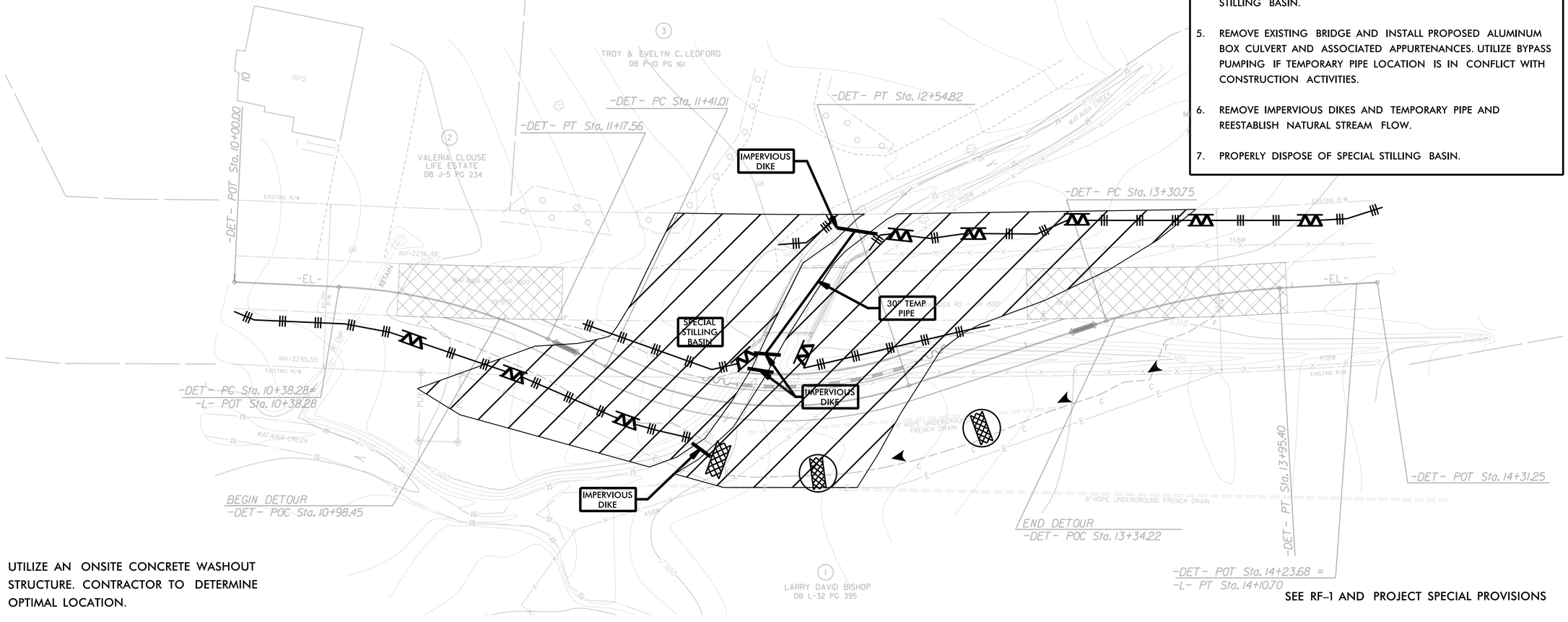
NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

NAD 83/ NSRS 2007



CONSTRUCTION SEQUENCE

1. CONSTRUCT IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF TEMPORARY DETOUR AND UTILIZE BYPASS PUMPING SYSTEM AS SHOWN.
2. INSTALL 2@48" TEMPORARY PIPES, TEMPORARY SHORING AND DETOUR. REMOVE BYPASS PUMPING SYSTEM AND IMPERVIOUS DIKES ONCE TEMPORARY PIPES ARE INSTALLED.
3. INSTALL IMPERVIOUS DIKES UPSTREAM AND DOWNSTREAM OF EXISTING BRIDGE AND 30" TEMPORARY PIPE AS SHOWN.
4. UTILIZE SPECIAL STILLING BASIN TO DEWATER WORK AREA. CONTRACTOR TO DETERMINE OPTIMAL LOCATION OF SPECIAL STILLING BASIN.
5. REMOVE EXISTING BRIDGE AND INSTALL PROPOSED ALUMINUM BOX CULVERT AND ASSOCIATED APPURTENANCES. UTILIZE BYPASS PUMPING IF TEMPORARY PIPE LOCATION IS IN CONFLICT WITH CONSTRUCTION ACTIVITIES.
6. REMOVE IMPERVIOUS DIKES AND TEMPORARY PIPE AND REESTABLISH NATURAL STREAM FLOW.
7. PROPERLY DISPOSE OF SPECIAL STILLING BASIN.

UTILIZE AN ONSITE CONCRETE WASHOUT STRUCTURE. CONTRACTOR TO DETERMINE OPTIMAL LOCATION.

SEE RF-1 AND PROJECT SPECIAL PROVISIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1630.06	Special Stilling Basin	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	

TROUT STREAM BUFFER ZONE

Place Matting for Erosion Control in Temporary Ditches

WALTER D. ROBERTS, III
LEVEL IIIA NAME

3514
LEVEL IIIA CERTIFICATION NO.

LOUIS BERGER
1001 Wade Avenue, Suite 400
Raleigh, NC 27605-3322
License No.: F-0840

ROADWAY PLANS

REVISIONS

0′ 20′ 40′	PROJECT REFERENCE NO.	SHEET NO.
	17BPJ4R.48	EC-2
	R/W SHEET NO.	

EROSION CONTROL

PHASE II

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

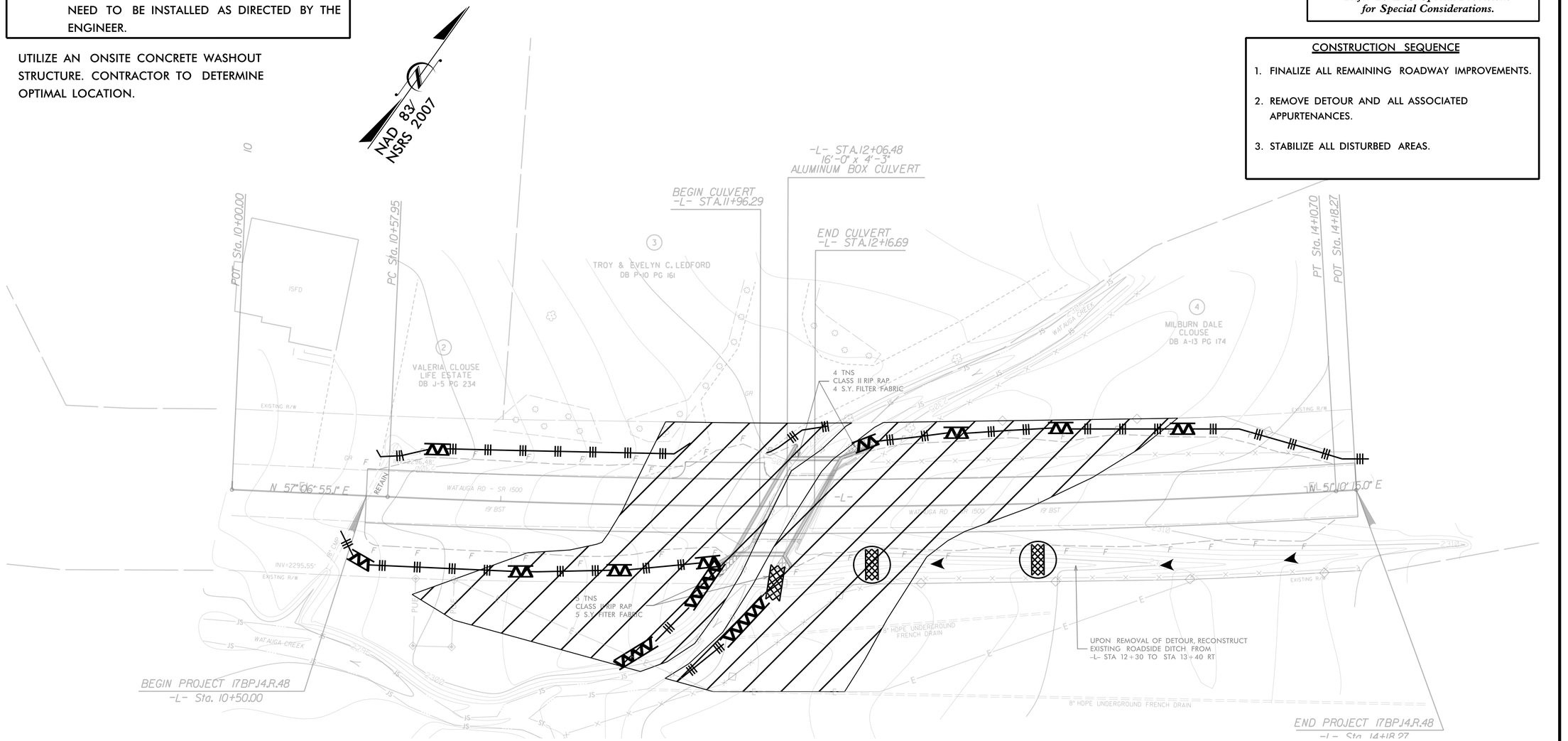
UTILIZE AN ONSITE CONCRETE WASHOUT STRUCTURE. CONTRACTOR TO DETERMINE OPTIMAL LOCATION.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

CONSTRUCTION SEQUENCE

1. FINALIZE ALL REMAINING ROADWAY IMPROVEMENTS.
2. REMOVE DETOUR AND ALL ASSOCIATED APPURTENANCES.
3. STABILIZE ALL DISTURBED AREAS.



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1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	

TROUT STREAM BUFFER ZONE

SEE RF–1 PROJECT SPECIAL PROVISIONS

WALTER D. ROBERTS, III
LEVEL IIIA NAME

3514
LEVEL IIIA CERTIFICATION NO.

LOUIS BERGER
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ROADWAY PLANS

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	EC-3
RW SHEET NO.	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

REVISIONS

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ROADWAY PLANS

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	EC-4
R/W SHEET NO.	

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
EC-1	-DET-	11+83	13+50	RT	110
EC-2	-L-	12+20	14+00	RT	90
				SUBTOTAL	200
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					2725
				TOTAL	2925
				SAY	2925

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

REVISIONS

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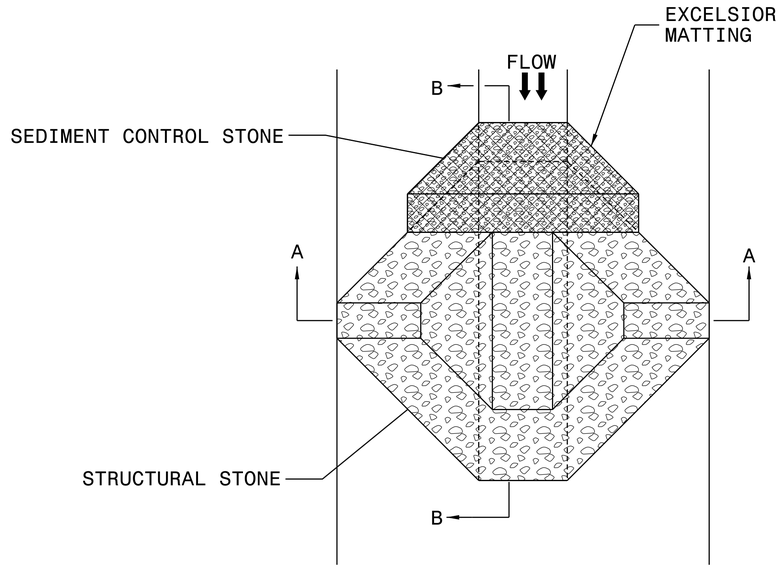
ROADWAY PLANS

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	EC-5
R/W SHEET NO.	

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM) DETAIL



PLAN

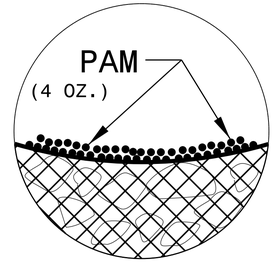
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

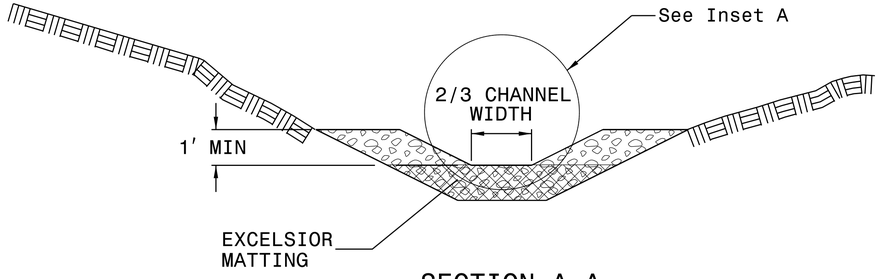
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

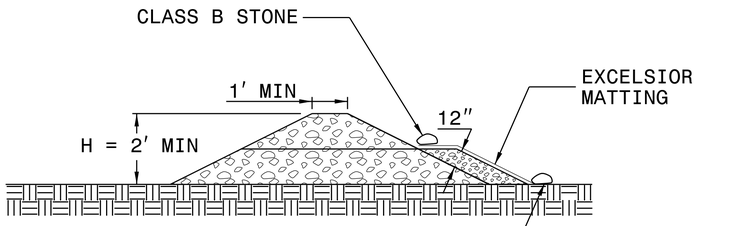
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

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ROADWAY PLANS

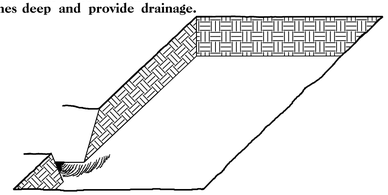
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	RF-1
R/W SHEET NO.	

PLANTING DETAILS

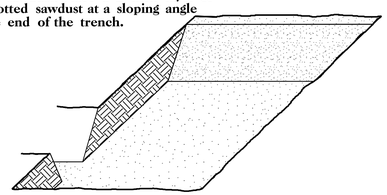
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

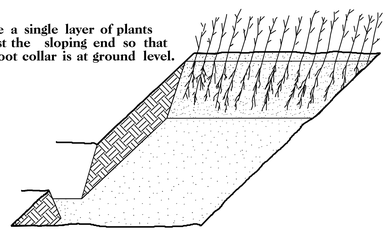
1. Locate a healing–in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



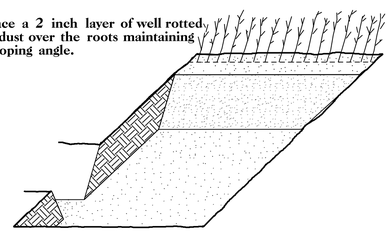
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

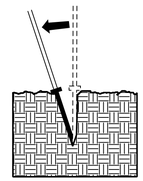


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

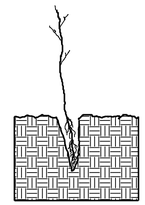


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

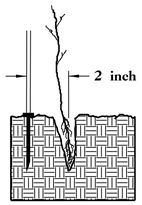
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



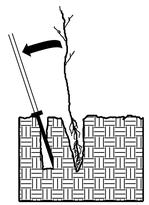
1. Insert planting bar as shown and pull handle toward planter.



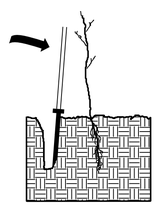
2. Remove planting bar and place seedling at correct depth.



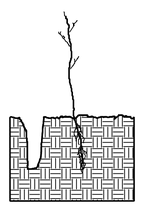
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

Reforestation:

Reforestation will be planted within interchanges and along the outside borders of the road, and in other areas as directed. Reforestation is not shown on the plan sheets.

All non–maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire Reforestation operation shall comply with the requirements of Section 1670 of the Standard Specifications.

Reforestation shall be bare root seedlings 12"–18" tall.

Reforestation shall be shall be planted as soon as practical following permanent Seeding and Mulching. The seedlings shall be planted in a 16–foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Reforestation shall be planted from November 15 through March 15.

Payment for Reforestation will be included in the contract bid price for Lump Sum for Erosion Control.

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

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ROADWAY PLANS

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TIP PROJECT: 17BP.14.R.48

CONTRACT: DN00293

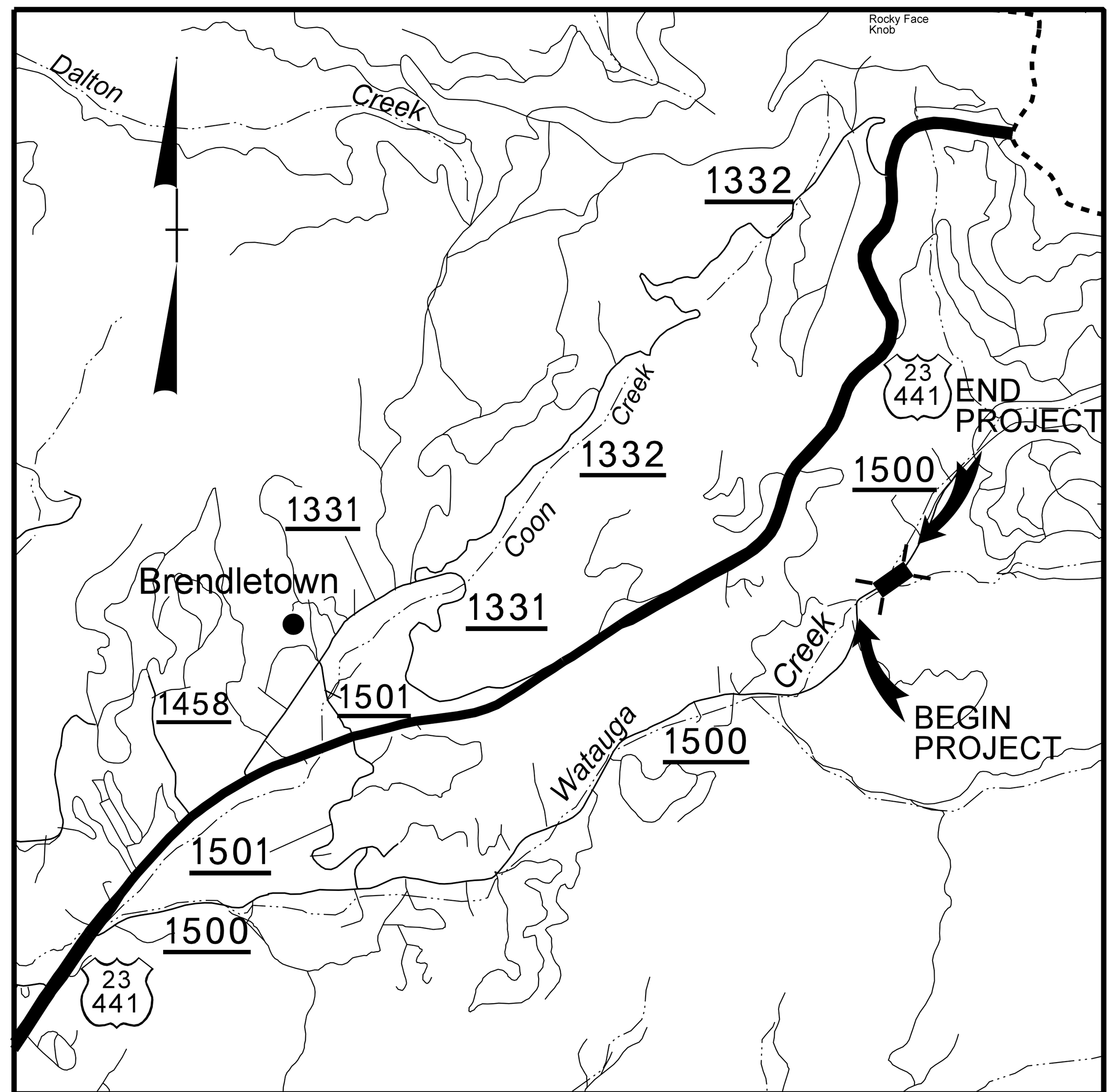
T.I.P. NO.	SHEET NO.
17BP.14.R.48	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
MACON COUNTY

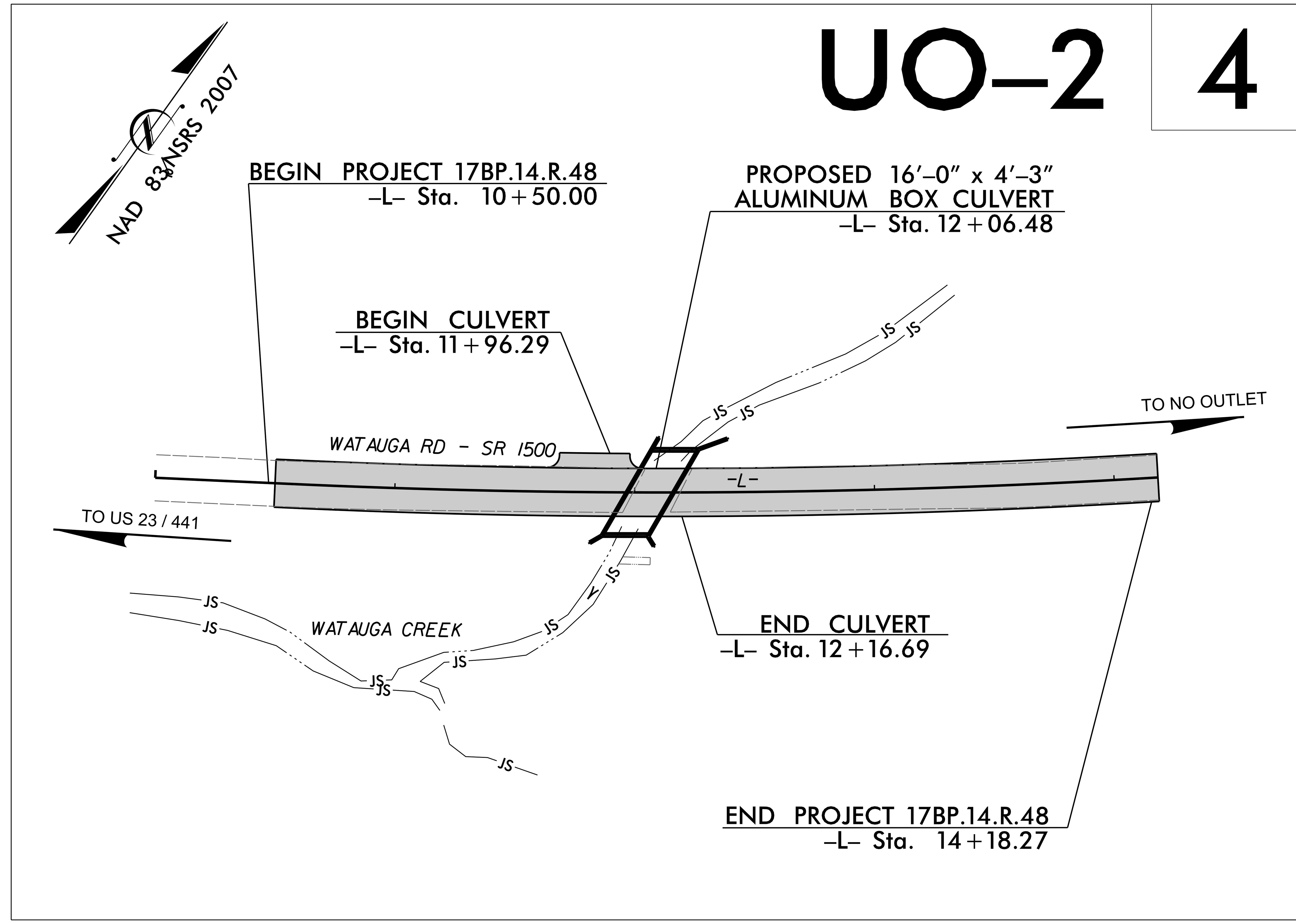
LOCATION: BRIDGE NO. 308 ON SR 1500 (WATAUGA RD) OVER WATAUGA CREEK

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE



VICINITY MAP ***NTS***

90% PLANS



NCDOT CONTACT:
JOSH DEYTON, PE
HIGHWAY DIVISION 14
BRIDGE MANAGER

GRAPHIC SCALES

20 10 0 20 40

PLANS

INDEX OF SHEETS

SHEET NO.	*DESCRIPTION*
UO–1	*TITLE SHEET*
UO–2	*UTILITIES BY OTHERS PLAN SHEET*
UO–3	*DETOUR PLAN (FOR REFERENCE)*

UTILITY OWNERS ON PROJECT

(1) POWER – DUKE ENERGY
(2) TELEPHONE – FRONTIER COMMUNICATIONS

UTILITIES BY OTHER PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD, HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

20 10 0 20 40

PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	UO-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

LEGEND

- PROPOSED JOINT-USE UTILITY POLE
- PROPOSED POWER POLE
- PROPOSED TELEPHONE POLE

NAD 83/ NSRS 2007

BEGIN PROJECT 17BP.14.R.48
-L- Sta. 10+50.00

POT Sta. 10+00.00

PC Sta. 10+57.95

BEGIN CULVERT
-L- STA.11+96.29

-L- STA.12+06.48
16'-0" x 4'-3"
ALUMINUM BOX CULVERT

END CULVERT
-L- STA.12+16.69

PT Sta. 14+10.70

POT Sta. 14+18.27

END PROJECT 17BP.14.R.48
-L- Sta. 14+18.27

ISFD

VALERIA CLOUSE
LIFE ESTATE
DB J-5 PG 234

TROY & EVELYN C. LEDFORD
DB P-10 PG 161

BM#1
-BL- STA 6+13.74
53.37' LEFT
ELEV.=2303.67'

MILBURN DALE CLOUSE
DB A-13 PG 174

LARRY DAVID BISHOP
DB L-32 PG 395

WAT AUGA CREEK

WAT AUGA RD - SR 1500

19' BST

EXISTING R/W

60.00' R/W

N 57°06'55.1" E

N 50°10'15.0" E

-L-

PROP O/H POW & TEL LINES

EX. O/H POWER & TELE TO BE REMOVED AND REPLACED WITH NEW O/H LINES

REMOVE POLES AND INSTALL TALLER POLE

PROP. O/H POWER AND TELEPHONE

PUE

+83.84 -L-
29.76' RT.,
54.76' RT

+69.66 -L-
29.90' RT,
54.90' RT

+79.73 -L-
68.99' RT

+40.48 -L-
68.93' RT

+58.21 -L-
30.06' RT

5 TNS
CLASS II RIP RAP
5 S.Y. FITER FABRIC

4 TNS
CLASS II RIP RAP
4 S.Y. FILTER FABRIC

8" HDPE UNDERGROUND FRENCH DRAIN

UPON REMOVAL OF DETOUR, RECONSTRUCT EXISTING ROADSIDE DITCH FROM -L- STA 12+80 TO STA 13+40 RT

PROP. 4' PCC

INV=2296.48'

INV=2295.55'

RETAIN

SPRING

SEE SHEET UO-3 FOR DETOUR ROUTE

UTILITIES BY OTHER PLANS PREPARED BY:
DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

$CYCTIME$$USERNAME$ DGN

20 10 0 20 40

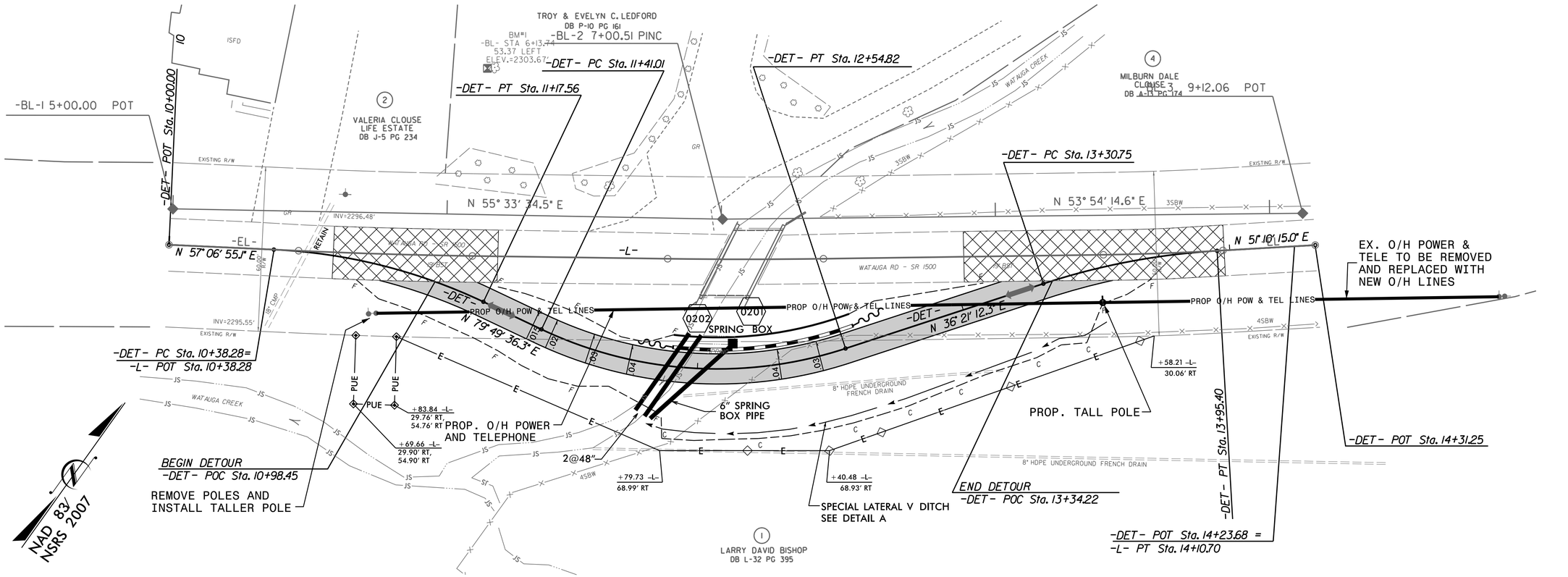
PROJECT REFERENCE NO.	SHEET NO.
17BP.14.R.48	UO-3

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

LEGEND

- PROPOSED JOINT-USE UTILITY POLE
- PROPOSED POWER POLE
- PROPOSED TELEPHONE POLE



SEE SHEET UO-2 FOR UTILITY MODIFICATIONS

UTILITIES BY OTHER PLANS PREPARED BY:
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ENGINEERS & SURVEYORS
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

$$$$SYSTIME$$$$
$$$$USERNAME$$$$